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BARNACLES
IN NATURE AND
IN MYTH

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BARNACLES

IN NATURE AND IN MYTH

By Edward Heron-Allen, F.R.S.



(DURET: 1605)

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TO
THE SETTE OF ODD VOLUMES

*at whose
four hundred and tenth
meeting, on the 26 January 1926,
this volume had its origin, in the form of a*
DISCOURSE delivered before the SETTE
by their NECROMANCER,
it is
DEDICATED



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FOREWORD

VENATOR. I doubt we shall have a watery discourse of it, but I hope it will not be a long one.

AUCEPS. And I hope so too, though I fear it will.

Compleat Angler, 1st Day, chap. i.

THIS volume had its origin in a post-prandial discourse delivered on the 26th January 1926 before the 'Sette of Odd Volumes', and was intended to see the light as one of the *Opuscula* issued by that Society by and to its Members. In the process, however, of preparing that Discourse I made discovery of a vast number of references to the subject in the works of early Zoologists, Botanists, and Thaumato-genists, constituting a veritable literature of the subject, and as a result the present compilation ensued.

The word 'Barnacle' has, in course of time, been applied to strange philological uses. 'What d'ye lack, sir? What d'ye lack, Madam? Clocks, watches, barnacles?' cries Frank Tunstall in the opening pages of 'The Fortunes of Nigel' (1) when he is offering his spectacles for sale at the Fair; and the word has found itself applied to an instrument of torture and discipline for man and beast (2). In the sense implied by Mrs. Whitney when she tells us that Blackmere 'barnacled himself on to Gershom Vorse' (3) the word has passed into history with the Dickensian clan of the Tite-Barnacles (4) and has recently achieved a renewed immortality in the same sense in a poem by the late 'Jester' to the 'Sette of Odd Volumes' in the lines (5):

Thousands of Barnacles, small and great,

Stick to the jolly old Ship of State;

So we mustn't be cross if she seems to crawl—

It's rather a marvel she goes at all.

The philology of the word 'Barnacle' has exercised the minds of ingenious experts, pre-eminent among

them the late Professor Max Müller, to whose views I shall briefly refer (6), though this branch of the subject will not concern us to any significant extent.

In the first part of this volume I shall present the reader with a succinct account of the creatures themselves, the familiar species of Barnacle, *Lepas anatifera*, Linnæus (7), and *Balanus balanoides*, Linnæus (8), the pedunculate or stalked species thrown up on our shores adherent to logs of driftwood, and the sessile species growing upon our rocks, and so deleterious to bathers and the bottoms of ships.

It is with the Myth connected with the former of these that the second portion of this 'opus' is concerned. As will be seen in the course of the narrative, the Myth is subject to a number of smaller or larger variations, but, broadly speaking, it runs that the fruits (or leaves) of certain trees, falling into the sea (or on land), become Barnacles (or birds); or that the Barnacles themselves grow upon a tree (or upon a log, or upon ship timbers), and, when developed to a certain point, fall off into the sea and become geese (or ducks), in fact the Barnacle-geese or Brent-geese (*Branta bernicla*), the Macreuse of French writers (9). The Myth is of such hoary antiquity that Linnæus, who cannot be even remotely suspected of credulity as regards the Myth *per se*, retained the specific names *anatifera*—'the goose-bearer'—in the genus *Lepas*, and *bernicla* for the goose (10) in the genus *Anser*.

Let me dispose at once of the natural history of the bird, so far as it concerns us. It was my good fortune to number among my audience when I lectured upon this subject at Oxford in November 1926, the Rev. Francis C. R. Jourdain and Mr. B. W. Tucker. The former was good enough to favour me with the following note and his permission to reproduce it in this place, a permission of which I gladly and gratefully avail myself since it has, as will presently appear, a signi-



FIG. 1. *Lepas anatifera*, on driftwood

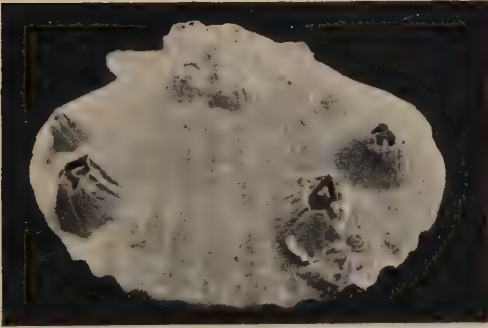


FIG. 2. *Balanus balanoides*, on Pecten shell

ficant bearing upon the whole history of the Myth. He writes: 'It is very doubtful whether the older writers distinguished between the two species of 'Black Geese', viz. The Brent = *Branta bernicla* (Linn.), and the Barnacle = *Branta leucopsis* (Bechst.). Both are winter visitors to the British Isles and neither breeds anywhere near us.

'The only known breeding-places of the Barnacle are Spitzbergen and East Greenland. In Spitzbergen it was discovered in 1907, by A. Koenig, breeding in cliffs. He found another nest in 1908, but it was not until 1921 that we (Mr. Tucker and myself) rediscovered them in the same district, and again in 1922, during the Oxford University Expedition to Spitzbergen of 1921-2, under my leadership. Since then it has been found nesting on the east coast of Greenland.

'The Brent does not nest on cliffs, but, as a rule, on small islets off the coast, and has been found at many localities in the Arctic, including Novaya Zembyla and Spitzbergen. I do not think there is any doubt that the birds found breeding in Novaya Zembyla by the Hollanders in 1596 (*vide post*, p. 46 and note 151) were the Brent (*Branta bernicla*). These birds breed in colonies on low islets and sailors landing would come across them.

'All nests of Barnacle found up to the present have been on the face of cliffs, often at great heights, and it is unlikely that landing parties would find them. It is owing to this that the breeding habits of the Barnacle remained unknown until 1907. The young goslings, when hatched, scramble or fall down cliffs for some 1,200-1,400 feet apparently without injury to themselves. It was a curious coincidence that out of the five Englishmen who have seen the nest of this goose two should be present at your lecture.'

PART I

THE BARNACLE IN NATURE

IT is always a fragment of interesting, if useless, information to the layman to be told that the water-fleas in his bird-basin, and the Barnacles which, according as they are stalked or sessile, arouse his wonder or his wrath, are 'a kind of lobster'. Were this a scientific manual, its caption should be:

Class: Crustacea. *Sub-class:* Cirripedia. *Order:* Thoracica. *Sub-orders:* Pedunculata (the stalked *Lepas*, or 'Ship's Barnacle') and Operculata (the sessile *Balanus*, or 'Acorn shell').

The sub-class is called Cirripedia (from *cirrus* = a curl, or tuft of hair) on account of the plumose appendages with which the animals sweep the water in search of food. I will show you the two types at once; *Lepas anatifera* and *Balanus balanoides* (Figs. 1 and 2).

The geographical range of these types is world-wide, *i.e.* from $74^{\circ} 18'$ N. latitude to Cape Horn; the stalked adhering to anything that floats, and the sessile to anything whereon they can establish themselves. They are not, therefore, except for some special types, found on coral reefs, or on sandy, muddy, or shingly sea-bottoms. *Lepas* is of course, in a sense, sessile by its stem, but it is convenient to separate it as pedunculate, or 'stalked'. I do not propose to refer to other species, such as those which embed themselves in the skins of sharks, and dog-fish (11), whales (12), and other marine organisms. A species has been discovered attached to the web-foot of a sea-bird, others to marine turtles (13), and they are found also on floating blocks of pumice (13 a).

I reproduce in Fig. 3 a Pycnogonid *Boreonymphon robustum* (Bell)—dorsal and ventral aspects—found among our North Sea Dredgings from the Wyville Thomson Ridge (14) by my friend and collaborator Arthur Earland. You will see that it has several symbiotic Barnacles—*Scalpellum nymphocola*, Hoek—attached to its legs. The Pycnogonids are probably the laziest organisms in existence that have power of locomotion, and this creature has disturbed his lodgers so little that one of the Barnacles has a Foraminifer—*Psammospaera fusca*, Schulze, symbiotic in turn, sessile upon one of its valves. Considering that this animal came from a depth of 1236 metres, with a bottom temperature of -1.04°C ., almost a cold record for a sea-bottom, one may say that it lived in a Danteian Hell of eternal darkness, enormous pressure, and perpetual frost.

The geological range is more difficult to determine, for though the mysterious compound *chitin*, by which the valves of the shells are connected with one another, is practically indestructible, those valves are seldom found embedded together.

Palaeontologists have paid much attention to the matter since Darwin referred certain fossils from the Stonesfield Slate (Upper Oolite) to the Cirripedia. Other authors have recorded their fossil remains (referred to *Pollicipes* (15) and *Scalpellum* from Ordovician and Silurian strata—chief among them in recent years being Dr. R. Ruedemann (16), but these determinations have been soundly contested by Dr. W. T. Calman (17) and Mr. T. H. Withers (18). To the latter authority I am indebted for the following statement of the case at the time of writing (April, 1926): ‘No undoubted Cirripedes have been found in the Palaeozoic rocks, but *Eobalanus* from the Upper Ordovician of New York, *Hercolepas* from the Upper Silurian of Gotland, and *Protobalanus* and *Palaeocreusia*

from the Middle Devonian of New York have been considered to be the ancestors of sessile Cirripedes (19). On the other hand, such forms as *Lepidocoleus* (Ordovician, to Devonian), *Plumulites* (ditto), *Turrilepas* (Middle Silurian), and *Strobilepas* (Middle Devonian) have been regarded as the ancestors of the stalked Cirripedes. It has still to be proved that any of these forms are Cirripedes at all, and although *Hercolepas* seems more like a Cirripede than the others, still it is doubtful. The earliest definite Cirripede is the Upper Triassic (Rhaetic) form, described by Moore as *Pollicipes rhaeticus*. A few forms (e.g. *Archaeolepas*) are found in the Jurassic. In the Cretaceous there are various stalked Cirripedes such as *Archaeolepas*, *Zeugmatolepas*, *Scalpellum* (*Cretiscalpellum*), *S.* (*Arcoscalpellum*), *Pycnolepas*, *Calantica* (*Scillaelepas*), *C.* (*Titanolepas*), *Siramentum* (= *Loricula*), *Squama*, and *Loriculina*. It is not till the Upper Cretaceous that we find sessile Cirripedes, represented by the genera *Proverruca*, *Verruca*, and *Brachylepas*. *Proverruca* from the Chalk is of interest since it forms a link between the stalked Scalpellidae and the sessile Verrucidae. *Balanus* appears in the Eocene, and *Lepas* in the Miocene. *Pollicipes* is not known for certain as a fossil. *Scalpellum* even in its widest sense is not found below the Lower Cretaceous, but some Jurassic forms may be ancestral to *Calantica* (Cretaceous to Recent).'

The group, both sessile and pedunculate, culminates in the present epoch where their distribution, as we have seen, is so wide that Darwin suggested (20) that 'the present period will hereafter apparently have as good a claim to be called the age of Cirripedes as the Palaeozoic period has to be called the age of Trilobites'.

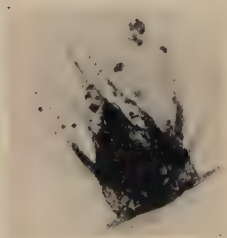
By the early naturalists they were classed as Mollusca, though Cuvier (21) seems to have had doubts as to this attribution. It was not until 1830-5 that Dr. Vaughan Thompson, who studied these animals

in Queenstown Harbour (22), discovered that they were 'strangely altered shrimps' and gave them their proper place in systematic zoology. Curiously enough this discovery had been adumbrated as early as 1745 by Turberville Needham (23) who, in a well reasoned and illustrated chapter, called attention to certain 'particulars' in which 'they seem to resemble the Shrimp, the Cray-fish, and Lobster'. But these 'particulars' conveyed no suggestion to Linnæus, Cuvier, or the classical malacologist Poli, all of whom included the Barnacles among the Mollusca.

It will be seen in Part II of this volume that several of the early naturalists gave remarkably accurate diagnoses of the external anatomy of the Barnacles, both *Lepas* and *Balanus*. Names which occur to one at once in this connexion are those of Fabius Colonna in 1592, Imperato in 1597, and Bartholinus in 1661, but it must be borne in mind that though the 'idea' of the simple microscope dates back, *fide* Layard, to several centuries B.C. it was not until the first half of the seventeenth century that it was extensively used, and though the first compound microscope dates back to the end of the sixteenth century, it was not until the middle of the seventeenth century that it became a practical working instrument. The magnified cirrus of Bartholinus (see Fig. 31, e) is the first figure of its kind known to me. Without having gone deeply into this side issue, it seems to me that the observations of Needham marked a great advance in the science of microscopy as applied to the Barnacles. His plate bears comparison with much modern work. His descriptions and figures of the external parts, both macroscopic and microscopic, are extraordinarily accurate, but the soft body defeated him; he says: 'The Body of the Fish hath nothing remarkable in it, that falls within the scope of my enquiry. . . . it nearly resembles in Shape the Body of a very small



FIG. 3. *Boreonymphon robustum*, with symbiotic Barnacle
Scalpellum nymphocola



(a) by reflected

(b) by transmitted light

FIG. 4. Barnacle larva. First (Nauplius) stage

Oyster.' He then proceeds to give an equally minute description of the external parts of *Balanus* as he saw it.

It will be seen in Part II that Trembley, whose work upon fresh-water Polyps (24) had led Needham to suggest an analogy between them and the Barnacles, carried the observations of Needham into the realm of the Barnacle-goose Myth, in a later work, a translation of Needham's book published in 1747. The passage in question in Needham's work (he is discussing Trembley's Polyps: p. 6) runs: 'Its extraordinary method of Propagation, which appears to be a true Vegetation . . . is a Property of the same Nature, equally amazing and not to be explained tho' in process of time it should, as in the amount of our present Discoveries it cannot be instanced in any other animal unless the *Barnacle* may be excepted, a small tubiform Animal, which is found adhering in Clusters to Rocks, and the Bottoms of Ships, where they multiply incredibly' (25). Then follows the long description of *Lepas* and *Balanus* above referred to (26).

The early life of a Barnacle is a free-swimming one in which it 'moults' or changes its appearance three times. It is very easy to watch these changes, for if, towards the end of the month of March, you put a stone or an oyster-shell covered with *Balanus* into a shallow bowl of sea-water, you will very soon see the young larvae, in what is called the Nauplius stage (Fig. 4), ejected from the everlastingly pulsating opening at the top of the shells. Up to this time they are enclosed in a minute case like a canary seed, and sometimes it is ejected with them, but in any case the little Nauplius gets rid of this within a few seconds. When one considers that any number up to a dozen of these Nauplii may be ejected at every 'sweep' of the parental cirri, and that the parent 'sweeps' about twenty times or more in a minute, one realizes that it

takes a very short time to bring tens of thousands of Barnacles into the world for the discomfort and annoyance of ship-owners and bathers.

In this state, in which they are practically indistinguishable from the earliest form of many other Crustacea, they have three pairs of jerking limbs, the swimming power of which is quickly lost, and a single eye. The animal then enters the second stage (Fig. 5) in which the anterior limbs become converted into longer limbs (antennae), provided with suckers which secrete an adhesive cement; the second pair disappears altogether, and the third remains as mandibular stumps. In this stage it acquires or develops a pair of eyes, in addition to the single median eye.

It then enters the third or Cypris stage (Fig. 6) in which the eyes become large and compound, being plainly visible through the bivalve shells, and developing little jaw-feet (maxillae) and six pairs of forked legs by which the creature paddles about actively. It is now encased in a pair of little shells, and resumes, in an enlarged form, the canary-seed appearance of its embryonic stage. In this stage it swims about for a time and then selects the spot where it is to pass the rest of its stationary, but ever-active existence. This found, it presses its head upon the selected spot; the cement then pours from the antennae, hardening at once in the water, and the Barnacle is settled for life. It then grows very rapidly, the delicate little bivalve shell is cast off and replaced by hard calcareous plates, which open and shut upon a basal hinge, and it becomes an adult *Balanus* in its house, which is not unlike a jelly mould with an opening in the top, and has caused superficial observers to imagine that they are small limpets with their tops rubbed off. The six pairs of swimming feet grow out into the cirri, and the paired eyes disappear, only the unpaired eye persisting as a vestige deeply buried in the tissues of the head.



FIG. 5
Barnacle larva. Second stage



FIG. 6
Barnacle larva. Third (Cypris) stage



FIG. 7A



FIG. 7B

Lepas anatifera (Linn.)
(a) as seen (b) with one side removed

In the tropics we find acorn Barnacles three or four inches in height and more, and the species *B. psittacus* found on the coasts of Chili attains a height of nine inches and a diameter of three. This is described by Darwin as 'universally esteemed as a delicious article of food'. A stalked species, *Pollicipes cornucopia*, is freely eaten on the coasts of Brittany, and in Spain (see note 99).

In the case of the stalked Barnacle, as soon as the Cypris has attached itself to its selected log or other means of conveyance about the world by the antennulae or suckers, the pliable tube forms itself between the creature and the point of attachment to a length of one to three or four inches, by which it hangs, swaying to and fro in the water, and forming the neck of the goose in the Myth (Figs. 1 and 7). At the same time, the shelly plates or 'valves' develop, each formed of two irregularly triangular plates, hinged on to a *carina* or keel by means of the *chitin* above referred to. In the sessile form the neck is replaced by a sort of protective collar round the base of the shell (Fig. 8).

So, as Sir Ray Lankester improving upon Huxley's original suggestion (27) has picturesquely put it, the Barnacles have undergone a transformation which may be compared to that experienced by a man who should begin life as an active boy, running about as others do, but be compelled suddenly, by some strange spell or Arabian Djinn, to become glued by the top of his head to the pavement, and to spend the rest of his life in kicking his food into his mouth with his legs (28). This is an operation quite visible to the naked eye, or with a low-powered lens, and I have been told by persons priding themselves upon an acute sense of hearing that, resting among rocks covered with millions of Acorn-Barnacles, they could *hear* them 'sweeping'. They were, of course, lying on the rocks. The operation is fascinating to watch. The four valves open

suddenly, the plumose cirri are protruded with a quick incurving 'sweep' (Figs. 9 and 10), and the valves close again upon them as they retreat with any microscopic prey that may have become entangled in them.

The Barnacles are normally *monoecious* (one-housed) or, as one should say, hermaphrodite, depending upon no 'collaboration' for the reproduction of their species, but Darwin, when working out the Cirripedes of the 'Beagle' Expedition (29) (in doing which he classified over three hundred known species and added many new ones), discovered the existence of dwarf parasitic males perched upon the edges of the shells of large individuals, a kind of 'auxiliary steam' appliance, or aides-de-camp. And Darwin (30) tells us that some large individuals of certain species are purely, or at any rate only, female, so that the separation of the sexes is in these cases complete. On the other hand some of these dwarf males have been found to possess rudimentary ovaries, so that we may conclude that the domestic relations of these Cirripedes are full of remarkable and possibly disconcerting possibilities. These 'complemental' males are only found on certain bottom-living and for the most part deep-sea species, and have not been observed in the sessile forms—the Balanidae.

It only remains to be said that the Cirripedes have no hearts. But they have eyes, as one may prove, when watching them 'fishing', by interposing a hand between the animal and the source of light; then the fishing ceases, and is only resumed when the light is once more unshaded, or the animal has become accustomed to the modified illumination.

I have referred in passing to the adoption of the larger Balani as food, and Dr. Calman tells us (*op. cit.*, in note 30, p. 250) that in Japan one species is elaborately cultivated as manure.

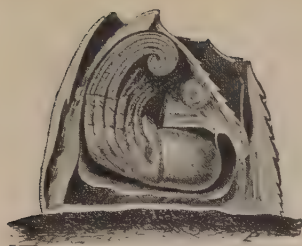


FIG. 8
Balanus balanoides (Linn.) section



FIG. 9
Cirri of Barnacle, dissected out



FIG. 10
Two cirri, magnified

There is a great deal to be said about the anatomy and physiology of these Barnacles, but this is not the occasion on which to enlarge upon it, especially as it has all been said by Huxley, Darwin, Galton, Lankester, and many other easily accessible authorities upon the group (31).

PART II

THE BARNACLE IN MYTH

THE early history of this marine organism lays claim to the application of Edgar Saltus's fine phrase 'panoplied with the dim magnificence of Myth', for its origin—like that of Mr. Jeames Yellowplush—is 'wrop in myst'ry'.

Until M. Frédéric Houssay carried it back some three thousand years, the Myth seemed to have made its first appearance in the eleventh century (32), in the works of Pietro Damiani, Cardinal Bishop of Ostia, who observed that 'Birds can be produced by trees, as happens in the island of Thilon in India', and went on to describe the birds as bursting, when fully fledged, from fruit resembling apples (33).

Sebastian Münster (writing in 1550) stated that Saxo Grammaticus, the Danish historian who flourished between 1150 and 1206, mentions the goose-bearing tree (34), but Professor Max Müller (35) and J. V. Carus, who studied the early records of the Myth with Teutonic thoroughness (36), both tell us that they have never been able to find the passage referred to (37).

It is a moot point whether the first authoritative statement of the Myth was made by Neckam or by Barri, better known as Giraldus Cambrensis. The account of Giraldus permeates the literature: I have only seen Neckam referred to once, and that by the French editor of the 'Ymage du Monde' (*q.v. post*). Alexander Neckam (*nat.* 1157, *ob.* 1217), the manuscripts of whose work all date from the thirteenth or early fourteenth centuries, gives this account: 'the bird which is commonly called bernekke (38) (in some MSS. 'bernek') takes its origin from pinewood which

has been steeped for a long time in the sea. From the surface of the wood there exudes a certain viscous humour, which in course of time assumes the form of a little bird clothed in feathers, and it is seen to hang by its beak from the wood. This bird is eaten by the less discreet in times of fasting because it is not produced by maternal incubation from an egg. But what is this? It is certain that birds existed before eggs, wherefore birds which do not emerge from eggs follow the laws relating to fishes as regards food, rather than those relating to birds which have evolved by the transmission of seminal matter. Have not the birds derived their origin from the waters according to the irrefutable pages of heavenly doctrine? How can it be said that the *bernekke* are not born excepting from wood treated by the sea, or from trees situated on the edges of shores? It is interesting to observe that this, our earliest reference to the Myth questions it; and Neckam objects even more tersely in his elegiac on Divine Wisdom where he says: 'Rumour has it that by a process of Nature pinewood steeped in the sea gives forth young birds. This is done by a viscous humour: what public opinion asserts, philosophy indignantly denies' (39). And yet we shall see what follows.

Practically contemporary with Neckam, in 1187 Gerald de Barri, more widely known as Giraldus Cambrensis, gives what is perhaps the most accepted and quoted as authoritative (?) account of the matter, after his visit to Ireland in the reign of King Henry II. He says (40): 'There are in this place many birds which are called *Bernacae*: Nature produces them against Nature in the most extraordinary way. They are like marsh geese but somewhat smaller. They are produced from fir timber tossed along the sea, and are at first like gum. Afterwards they hang down by their beaks as if they were a seaweed attached to the

timber, and are surrounded by shells in order to grow more freely. Having thus in process of time been clothed with a strong coat of feathers, they either fall into the water or fly freely away into the air. They derive their food and growth from the sap of the wood or from the sea, by a secret and most wonderful process of alimentation. I have frequently seen, with my own eyes, more than a thousand of these small bodies of birds, hanging down on the sea-shore from one piece of timber, enclosed in their shells, and already formed. They do not breed and lay eggs like other birds, nor do they ever hatch any eggs, nor do they seem to build nests in any corner of the earth. Hence Bishops and religious men (*viri religiosi*) in some parts of Ireland do not scruple to dine off these birds at the time of fasting, because they are not flesh nor born of flesh.'

Sylvester Giraldus (as Duret calls him) goes on acutely to observe: 'But in so doing they are led into sin. For if anyone were to eat of the leg of our first parent (Adam) although he was not born of flesh, that person could not be adjudged innocent of eating meat.' Sir Ray Lankester remarks⁽⁴¹⁾ on the portion of the above which he quotes, that it is noteworthy that Giraldus does not state—in accordance with the tradition as reported by other writers—that there is a tree the fruits of which become transformed into geese, but clearly indicates, by his description, groups of ship's barnacles upon fir timber, washed up along the sea shore. It is also noteworthy that he calls the geese themselves *Bernacae* which is the Celtic name for shell-fish.

Giraldus hangs upon the Myth a diatribe against the Jews, whom it was his hobby to convert to Christianity, and addresses them thus: 'Be wise at length, wretched Jew, be wise even though late . . . Blush, wretch, blush, and at least turn to Nature! She is an argument for the faith, and for our conviction

procreates and produces every day animals without either male or female.'

Practically contemporary, again, with Neckam and Giraldus is a reference which is of great interest to Englishmen, for it occurs in a work an English translation of which was printed at Westminster by Caxton about 1481 and again about 1490. This was '*l'Ymage du Monde*' written by an unknown author some time between 1218 and 1250 (42)—an edition in verse was written in 1246 (1245 old style). Its authorship has been attributed to 'Omons, Gauthier de Metz, and Gossouin, of whom not one has left any trace in literature' (O. H. Prior), but it is generally attributed to the latter. It is principally interesting from the fact that it is the second work that ascribed an Irish origin to the Myth; the account runs: 'There are towards Ireland on the sea, birds which fly; and grow on trees by their beaks; and when they are nearly mature, those that fall on land cannot live, and those which fall in the water live.' Here we have the constantly repeated and modified story in a nutshell. Caxton's volume '*The Myrrour of the World*' (43) is said by de Ricci to have been written by Vincent de Beauvais—to whom we are immediately coming—and translated by Caxton himself (44). Here we get the first mention of ship-timber as a locus of origin, and the word 'Barnacle.'

In the *Bestiary* of Pierre le Picard, apparently of the thirteenth century, there is a curious passage which runs:

Physiologus tells us that there is a tree on a water of a sea, which bears birds that resemble geese, but they are a little smaller. And when these birds grow, they hang by the beak to the tree until they are mature. And when they are mature, they fall down as a pear does from a tree when it is ripe. And when these birds fall down, those which fall into the water they float away and are safe, so that they have no fear of death. And those that fall outside the water on to the ground, those remain lying all still and die and are lost.

This signifies that no man is regenerated nor perfect if he has not first fallen into the water when he is washed in the name of baptism. And those that are not washed in water in the name of baptism, they are lost like the bird that falls from the tree on to the ground and dies and is lost (45).

It is clear, therefore, that the Myth of the arboreal origin of these geese was in wide repute in the twelfth and thirteenth centuries. Not less continually quoted than that of Giraldus Cambrensis is the testimony of Vincent of Beauvais (*fl. c. 1190—c. 1264*), the encyclopaedist of the Middle Ages, which is recurrent in all the early works which record the Myth. He is generally cited as Vincentius Bellovacensis, or, after the middle of the fifteenth century, as Vincentius Burgundus. It is necessary to formulate his testimony at some length, and to give the original (46); he says: ‘Bartlathes are birds which grow from wood, which the common people call bernacas. It is said that the wood of the fir-tree falling into the waters of the sea, when in course of time it begins to putrefy, emits a dense humour, from which when condensed small species of birds of the size of larks are formed. At first they are naked, then maturing they become feathered, and hanging to the wood by their beaks they float about in the sea until they reach maturity, when they move and break away; thus they grow and invigorate till they reach their allotted size. Both I and people worthy of credence have seen many of these hanging and have testified to it Speaking of these, Jacobus Achonensis, Bishop, in his Oriental History says there are trees on the sea-shores from which they are procreated hanging by their affixed beaks. At the time of their maturity they fall from the trees, and growing, begin to fly like other birds. However, if they do not fall immediately into the water they cannot live, since their nutriment and means of existence are in the water. It is to be observed,

however, that they hang not from the ends of the branches, but from the trunks and the bark of the trees. They grow by the juices of the trees and the action of dew, and then becoming feathered and strong with life they break away from the bark. It is certain also that in our own country about Germany they do not generate, nor are they generated by copulation. No one of us has ever seen them copulate. Therefore all Christians are in the habit of eating their flesh in times of fasting, where they occur in quantities. But Pope Innocent III in the General Lateran Council forbade this practice to continue. These birds live upon herbs and seeds like geese.' The 'Philosophus', who intersperses the work with comments, remarks upon this that these birds are also found in certain parts of Flanders, and that 'they produce no excreta, thus partaking of the nature of trees' (*vide post*, p. 80 and notes 46 and 233).

The bishop referred to was Jacques de Vitry (Jacobus de Vitriaco) (47), who also recorded the phenomenon as occurring in Scotland (48). Vincent of Beauvais derived his information from Thomas Cantimpratensis, who, in his work *Liber de Natura Rerum*, gives an account of the Myth in a quaint old Bavarian dialect of German (49).

But, as we have seen, even in these early days the Myth was not allowed to go unchallenged. Albertus Magnus (50) set forth the Myth and stigmatized it as absurd (51), declaring that he and many of his friends had seen the particular goose referred to lay eggs and hatch them out in the ordinary way (52).

In the section 'de Vegetabilibus' of his 'Parva Naturalia' (53) he alludes to the matter again, observing that 'We know that shells are animals devoid of sense and intellect; in some respects they are as plants, and in some as animals, as is stated in (my) book concerning animals; and it is only because they can

feel that they are called animals.' It may be mentioned however—and the fact is alluded to elsewhere (see p. 56)—that Albert the Great recorded the evolution of birds from the leaves of the *Salvia* (54). His observation of the viviparity of the birds was confirmed by Belon in 1555 (*vide post*, p. 30) and again by some Dutch sailors in 1596 who had visited Nova Zembla (*vide post* and note 151), whilst Roger Bacon (*ob.* 1244) is stated by Max Müller (who has been copied by subsequent writers) to have contradicted the Myth. I have laboriously searched all likely 'opera quae supersunt' of Roger Bacon in vain for any passage referring to the matter. I have little hesitation in saying that it does not occur in the 'Opus Majus' though there are several passages in 'De Multiplicatione Specierum' which indicate that he would not countenance such a story (55). So we must leave it at that. At the same time, however, Gervase of Tilbury, writing about 1211 (56), gave minute details concerning the process of generation, stating that great numbers of them grew in his time upon the young willow trees which abounded in the neighbourhood of the Abbey of Faversham in Kent, and tells us that the bird was known as 'Barneta' and was eaten in Lent (57) as 'fish'.

The Myth, on this account, speedily assumed the proportions of a clerical scandal, and, as we have seen, at the Fourth General Lateran Council in 1215 Pope Innocent III issued a Bull forbidding the eating of these Barnacle-geese in Lent. Nor was the problem confined to the Christian Church. Max Müller tells us that Rabbi Mordechai (writing in 1559) (58), described them as birds growing on trees, and recorded that 'the Rabbi Jehuda of Worms (*ob.* 1216) used to say that he had heard from his father Rabbi Samuel of Speyer (*fl.* 1150) that Rabbi Jacob Tham of Rameru (*ob.* 1171) the grandson of the great Rabbi Rashi (*fl.*

1140) had decided that they must be killed as flesh—in the Jewish manner’.

Hactenus Müller. The Rabbi Dr. George Alexander Kohut in the Jewish Encyclopaedia (59) gives us the following version: ‘Rabbi Tam’s (c. 1100–71) opinion is given in the Responsa of Rabbi Mur of Rothenberg (c. 1225–93). In discussing the question whether such birds must be slaughtered according to the ritual method (Responsa, ed. Lemberg, 1860, p. 12b, par. 160), he says; ‘My teacher the Lion (Sir Léon of Paris = Leo Blundus? 1166–1224) told me that he has heard from his father Rabbi Isaac, that Rabbi Tam directed that they should be slaughtered after the Jewish fashion, and sent this decision to the sons of Angleterre. According to Jacobus this is the first mention of the Myth, and confutes its Irish origin, since Rabbi Tam, who was a grandson of Rabbi Rashi, lived before the conquest of Ireland.’ Rabbi Tam allowed the geese to be eaten when so slaughtered. According to Kohut the first reference to the Myth is in the ‘Ittur’ of Isaac ben Abba Mari of Marseilles, c. 1170, and he states that the first Jewish author to locate the Myth in Ireland is the anonymous translator of the French cosmography ‘Image du Monde’ (see p. 13), compiled in 1245. Kohut goes into the matter very fully, and gives us many references; *inter alia* Moses Taku (Tachau) of Regensberg (c. 1250) in ‘Ketan Tamim’ (published in ‘Ozar Nehmad’, Vienna, 1860, vol. iii, 58–99) says that ‘birds growing on trees, *if it be true that they grow on trees*, are not forbidden food’. He gives as further references Gerson ben Salomo of Arles, 1270; Jehiel ben Josi (c. 1240); Jacob ben Asher (*ob.* 1340), and others down to 1790, adding, ‘as recently as 1863, to judge from a note in ‘Ha-Maggid’ (1863, vol. vii, No. 42, p. 335b.) the story is credited in Russia. Later on—in 1277—the Rabbi Izaak ben Joseph of Corbeil saved himself the

trouble of propounding, in his work 'Sofer Mizwoth Katan', by declaring that Jews must not eat these birds at all, 'because they were neither fowl nor fish (60), but belonged to the shell-fish species'.

In the book 'Zohar', one of the authoritative works of the Kabbala (said to have been written by Simeon ben Yohai (or Iochai) in 1290, but more probably by Moses ben Shem Tob de Leon who died in 1305), it is stated by Müller, by Sir Ray Lankester, and by Galton (61) that the Myth receives recognition, and that the Rabbi Abba had seen the trees whose branches became birds which grew out of them, but I do not believe that any or either of them verified this reference. I have no intention of searching conscientiously through the three thousand and odd pages, unindexed, of the only available edition of this book in a modern language (62), and the only attempt at a precise indication is given by Rabbi Kohut (see note 59) in the Jewish Encyclopaedia, who gives as a reference 'III. 156'. This evidently does not refer to the MS. or text which served de Pauly as his source, and though I have examined the whole of the Sections in Book III, I can find no trace of the passage referred to. Victor Carus (see note 36) gives as a reference 'II. 156', but a search through Book II has left me no wiser than I was before. He adds, however, that the Zohar has been incorporated into the Schulchan Aruch, where the passage may also be found. I refer those whose sense of rectitude leads them to read the notes to this volume to the further 'lights' upon the subject afforded by Carus (63).

Endowed with the picturesque imagination of the earliest tellers of travellers' tales, it is not surprising that at times an author improved upon his theme and caused his trees to give birth, not only to birds, but to beasts. Thus in the 'Voiage and Travaile of Sir John Maundevile, Kt.,' written by Jehan de Mandeville

between 1357 and 1371 (64) he describes such a marvel among those which he witnessed in Cathay, which is—in modern English—as follows (65): 'There groweth a manner of fruit, as though it were gourds: and when they are ripe, men cut them in two, and find within a little beast in flesh and bone and blood, as though it were a little lamb without wool



FIG. 11. Sir J. Maundevile. From the edition of 1735.

(Fig. 11). And men eat both the fruit and the beast: and that is a great marvel . . . And nevertheless I told them of as great a marvel to them that is among us, and that was of the Barnakes. For I told them that in our country were trees that bear a fruit that become birds flying: and those that fall in the water live, and they that fall on the earth die: and they be right good to man's meat', and he goes on to relate (such was international jealousy even in those days) that 'hereof had they as great marvel that some of them trowed it were an impossible thing to be.'

But although we have more than one account stated

to be upon the authority of an eye-witness, there were not lacking travellers who found this inquiry to be a 'wild-geese chase' in more senses than one. Thus the learned Aeneas Sylvius Piccolomini—afterwards Pope Pius II—visiting King James I of Scotland in 1435, made diligent inquiry for this goose-bearing tree of which he had heard accounts, and complained that 'miracles flee further and further' and that when he arrived in Scotland where it was reputed to grow, he was informed that it grew, not there, but further north, in the Orkneys (66)—a locality assigned to the tree by many of the subsequent authors.

It is not uninteresting to note, as proving the wide geographical range of the Myth—in a modified form—and its probable Oriental origin, that in the collection of stories known to us as the 'Arabian Nights', which scholars seem to date at the latest about 1450, we find Sindbad the Sailor saying, 'I saw also a bird that cometh out of a sea-shell, and layeth her eggs and hatcheth her chicks on the surface of the water, never coming up from the sea to the land' (67). This is a reference which has a bearing, in my opinion, upon the decorations of the Mycenæan pottery to which I shall refer in Part III of this work.

The Oriental origin of the Myth has yet to be studied. Steinschneider (68) says that analogous myths are to be found in Mas'udi, Ibn-Tufail, and others, but to this branch of the subject I have not had time to devote more than a superficial attention.

What is clearly demonstrable is that the Myth made its appearance in published literature very shortly after—it would be almost safe to say, contemporaneously with—the invention of printing. The first illustrated record, so far as exhaustive researches have entitled me to an opinion, is the 'Ortus Sanitatis' (69)—'that great storehouse of mediæval lore . . .' which appeared in many editions for forty years or



Ca. xiiij.

Bariliata. ⁊ Berneka. Aridius
Bariliates sunt aues de ligno cre
scentes. Fert enim q lignū de abie
te marinis aquis incidēs qñ successu epis
putrescere cepit humo iē ex se crassūz emit
it. ex quo densato formant̃ parue species
auium ad magnitudinem alādarum. pri
mumq; sunt nude. deinde maturātes plu
mesunt ac rostrum ad lignum pendētes
per mare fluitāt vsq; ad maturitatem do
nec se cōmouentes obrumpant. sicq; cres
cant ⁊ roborentur vsq; ad debitā formā.

De his autem Iacobus Arbonensis epi
scopus in orientali historia loquens dicit
q arbores sunt sup ripas maris de qbus
he procreant̃ rostris infixis arboribus de
pendentes ⁊ p uero maturitatis ex arbo
ribus decidunt. ac per in cimenta pficiē
tes. sicut aues ceterē volare incipiunt De
his itaq; certū est q in orbe nō circa Ber
maniaz. nec p coitū generāt. nec generāt.
Philosophus. Berneka q ex arboze na
scitur. in quibusdam quoq; flādrie pnbis
inueniē. Nec quis non hz sup fluitatem. si
cut nec arbores. Intra capitūlo. xx. pleni
habes.



/Ca. xx.

Arbates. Albertus in li. dena.
aialium inquit. Carbares qdam
mentiendo dicūt aues quas vul
gus baumgenſe. hoc est arborum anſeres
vocant (ut etiam superius audiuiſti in ca
pitulo xiiij) eo q ex arboribus na. ſci dicū
tur. a qbus ſtipite ⁊ ramis dependēt. que
inter corticem eſt nutritæ. Dicunt etiā alī
quando ex putridis lignis hec anialia in
mari generari (ut ſupius dictū eſt) ⁊ preci
pue ex abietum putredine. Afferentes q
nemo vnq; vidit. has aues coire vel onā
re. Et hoc omīno abſurdum eſt. quia ego
⁊ multi inecum de ſocijs vidimus eas co
ire ⁊ pullos nutritæ. ſic etiam in ante habi
tis diximus. hec auis caput habet qñ pu
uonis. pedes nigros ut ciguus. ⁊ funemē
brana coniuncti digiti ad narandū. ⁊ ſus
in dorſo cinere nigredinis. Et in ventre
ſunt albide alīqñ nūlū minoris anſerib⁹.

x ij

more before 1517, but whose author and original date still remain unknown and almost unguessed at. Meyer (70) claims that it existed for some time as a Latin manuscript, perhaps fifty years before the printing of the undated first edition (71). It is considered by experts judging from internal evidence to date from about the year 1400. Leaving aside the undated first edition, we have that printed at Mayence (Moguntiae) by Jac. Meydenbach in 1491. In this edition in the 'Tractatus de Avibus' occur two passages, which it is not necessary to transcribe, as they are quotations, the one, c. xiv, from Vincent of Beauvais (see p. 14) and the other, c. xx, from Albertus Magnus (see p. 15), but it will be of interest to reproduce the passages in facsimile (Figs. 12 and 13) as one of the earliest printed records of the Myth, and the earliest attempt at pictorial representation of it. It is here, in fact, that the Iconography of the Myth begins (72).

The whole of the scientific and geographical literature of the sixteenth century teems with the Myth. In 1522 Alexander ab Alexandro (73) tells us that his 'life-long friend Junius Dentatus Parthenopaeus' had told him of wood and of ships' keels cast up by the tide in Britain, 'on which short-stalked fungi grew on the sea-ward side', that after a lapse of days they moved and detached themselves from the trunk, and after a time developed wings and feathers and lived as marine birds, eating the littoral fishes, and that this caused no astonishment to the natives because it was an everyday occurrence.

The sixteenth century really established the myth in literature, and with the rapid progress of printing it not only circulated like wildfire but was accompanied by pictorial representations vastly 'improving upon' the cautious wood-blocks of the 'Ortus Sanitatis'. The majority of the 'authorities' took their inspiration directly or indirectly from the Scotch historian Hector

Boethius (or Boece), who in his 'Scotorum Historiae' (74) provided the first elaborate account. Boethius (*nat.* 1465? *ob.* 1536) was educated at Dundee and became 'regent' or professor in the University of Paris, in which city his History was printed in 1526-7. According to the 'Encyclopædia Britannica' he became priest of Tyrie, a parish to the south of Pitsligo, 'soon after' 1534: *sed quaere*, for he mentions both places, as we shall see, in his account. The encyclopaedist observes, and apparently with truth, that his 'imagination was stronger than his judgement; of the extent of the historian's credulity his narrative exhibits many unequivocal proofs; and of deliberate invention or distortion of facts not a few'.

The account of Boethius is of so much importance to the matter under consideration that it must be reproduced at length: as already observed, and as will be hereafter seen, it has served as the basis or inspiration of the majority of records to which I shall have occasion to refer. Translated into modern English from the barbaric 'Scots' of Archdean Bellenden, it is as follows: 'It remains now to speak of the geese generated by the sea named Claiks. Some men believe that the Claiks grow on trees by their beaks, but their opinion is vain. And because the nature and procreation of the Claiks is strange, we have made no little labour and diligence to search the truth and verity thereof. We have sailed through the seas where the Claiks are bred; and find by great experience that the nature of the seas is a more relevant cause of their procreation than any other thing. And howbeit these geese are bred many sundry ways, they are bred always only by nature of the seas: for all trees that are cast in the seas by process of time appear first worm-eaten, and in the small bores or holes thereof grow small worms: first they show their head and feet, and last of all they show their plumage and wings; finally,

when they are coming to the just measure and quantity of geese, they fly in the air as other fowls do: as was notably proven in the year of God 1490, in sight of many people, beside the castle of Petsligo (75). A great tree was brought by alluvium and flux of the sea to land. This wonderful tree was brought to the lord of the ground, who soon after caused it to be divided by a saw. There appeared then a multitude of worms throwing themselves out of sundry holes and bores of this tree. Some of them were rude, as if they were newly shaped, some had both head, feet, and wings, but they had no feathers; some of them were perfect shaped fowls. At last the people, having every day this tree in more admiration, brought it to the Church of Saint Andrew, beside the town of Tyre (76) where it remains yet to our days. And within two years after, there happened to come such a like tree into the firth of Tay, beside Dundee, worm-eaten and holed, full of young geese in the same manner. Such like in the port of Leith beside Edinburgh, within a few years after, there happened a like case. A ship named the *Christopher* after she had been lying three years at anchor in one of the Islands was brought to Leith: and because her timber, as it appeared, failed, she was broken down: and immediately there appeared, as before, all the inward parts of her worm-eaten, and all the holes thereof full of geese, in the same way as we have shown. Moreover, if any man would allege by vain argument, that this *Christopher* was made of such trees as grew only in the Isles, and that all the roots and trees that grow in the said Isles are of that nature to be finally, by nature of the seas, resolved into geese; we prove the contrary thereof by a notable example, shown before our eyes. Master Alexander Galloway, Parson of Kinkell (77) was with us in the Isles, giving his mind with most earnest business, to search the verity of these obscure and misty doubts; and by adventure lifted

up a sea-tangle, hanging full of mussel shells from the root to the branches. Soon after he opened one of the mussel shells, but he was more astonished than before; for he saw no fish in it, but a perfect shaped fowl, small and great always proportionate to the quantity of the shell. This Clerk, knowing us right desirous of such uncouth things, came hastily with the said tangle, and opened it to us, with all circumstances before rehearsed. By this and many other reasons and examples, we cannot believe that these claiks are produced by any nature of trees or roots thereof, but always to be the nature of the ocean sea, which is the cause and production of many wonderful things. And because the rude and ignorant people saw oft-times the fruits that fell off the trees, which stood near the sea, converted within a short time into geese, they believed that these geese grew upon the trees, hanging by their beaks, suchlike as apples and other fruits hang by their stalks. But their opinion is not to be sustained, for, as soon as these apples or fruits fall off the tree in the sea flood, they grow first worm-eaten, and by short process of time are altered into geese ' (78). It is to be remarked that this account, like several others probably inspired by it, seems to indicate that the timbers in question were bored by the common ' Ship's-worm ' *Teredo navalis*, as well as being covered with a colony of *Lepas anatifera*.

In the 1539 Italian edition of the *Supplementum Chronicorum* of Foresti (Jacobus Philippus of Bergamo) (78 a) the Myth is related, from Scotland, in a passage which was transcribed by Chassaneux (see p. 27 and note 87) wherein the statement that the birds swim under water makes its first appearance.

Side by side with the assertions there speedily arose the negations. In the sixteenth century a pretty quarrel arising out of the account of Boethius occurred between Girolamo Cardano and his standing and

bitter opponent Julius Caesar Scaliger. Polydore Vergil, in 1499, had somewhat rudely (*magno supercilio*), according to Cardano, brushed aside the story as fabulous (79). Cardano took him to task about this (80) and referred him to the History of Scotland of Boethius (81), but after balancing all the pros and cons at considerable length Cardano concluded that the question was not free from doubt, and left it with an open mind, requiring more proof one way or the other.

As was to be expected, Julius Scaliger—who had added ‘Caesar’ to his original baptismal name ‘Julius’ and was a megalomaniac (82)—sprang to arms in 1557 and, not content with abusing Cardano, proceeded to give a new version of the story evolved apparently from his inner consciousness. In this he stated that the ‘leaves’ (*sic*) of a tree growing by the side of a river in Juverna (Ireland) when they fall in the water become fishes, and when they fall on land become birds. And he goes on to say (83)—he is addressing Cardano—‘And you will be still more astonished to learn that in the British seas, a bird like a duck, of a species unknown to you, hangs by the beak to fragments of old and rotten wood, the remains of wrecked vessels, from which it ultimately becomes detached and flies away in quest of the fishes which are its natural food The Britons call them Bernachiae : and this word is used by them proverbially to designate a person whom they wish to rebuke for indolence and vacillation: as much as to say that he is neither flesh nor fish.’ He then proceeds to ‘tell another’ of a shell brought to the French King, ‘not very large, within which was a little bird almost perfect even to the points of its wings, its beak, and its feet. It still adhered to the shell by the tip of its beak’; and relates that ‘learned men’ were of the opinion that the flesh of the shell-fish had been transformed into that of the bird. A full account of this controversy is

given by Lee in his 'Sea fables explained' (84), and the passage in the original is given at length, with a somewhat free translation, by Claude Duret (note 160, pp. 310-13).

Scaliger had published (in 1551) his Commentaries upon the plants of Aristotle (85) which were republished after his death at Geneva. In this he says: 'The third method of this progression of nature is more rare: even as what is falsely recorded of the Phoenix, but truly of the ducks of the British ocean, which the Bretons (Armorici), call partly Crabrans and partly Bernechiaie. These are created out of the putrefaction of wrecks, and hang by their beaks from their place of origin until, cast loose, they fall into the water beneath them, where they immediately seek their food. Carefully observed when hanging they are seen to move both their legs and wings' (86).

In 1546 we find an account of it given by Chassaneux (87) who records that in Scotland there is an island where trees grow upon the shore bearing fruit like ducks, which fly off by themselves when mature, and fall either on land or in the water, that the former rot and die, and the latter swim about alive, and that they can swim under water and fly in the air,—and in a later passage quoting from Fulgosius (a favourite authority with these early writers), he informs us that 'in insula Niverna (quam Irlandam nominant)' they are eaten in fasting seasons as they are not born of birds. He solemnly argues against the refutation of Albertus Magnus, the matter being so well attested by the witness of serious persons that it should not be regarded as open to doubt (88). This is the earliest authority known to me who states that these miraculous birds are divers.

Sebastian Münster in 1550 tells us (89) that 'in Scotland there are trees which produce fruit conglomerated or enveloped in their leaves (90): and this

fruit, when in due time it falls into the water beneath it, is endowed with new life, and is converted into a living bird, which they call the "tree-goose". This tree grows in the Island of Pomona (see note 182) which is not far from Scotland towards the North.' He cites Saxo Grammaticus, and says the account 'must not be regarded as fictitious, as some new writers suppose'. He supplies us with the earliest woodcut representing the actual Myth (Fig. 14), and it is he who (as far as I can make out) first relates the complaint of Pius II above recorded, and is responsible for the reference to Saxo Grammaticus.

Contemporary with Münster was William Turner, Dean of Wells, physician and botanist, whose 'Herbal' (91) has been said to have marked the start of scientific botany in England. Being 'deprived' in 1553, he travelled abroad until his reinstatement in 1560, and becoming intimate with Gesner was one of the many writers who contributed to Gesner's 'Historia Animalium' (see p. 30 and *op. cit.* in note 283, p. 107). In Book III, 'de Avibus', he says (92) that no one has ever seen the nests or eggs of the Bernicla, and that this is not remarkable seeing that it generates spontaneously without parents: that from the rotten timber of ships at first a kind of fungus arises, which in process of time shows the characteristics of birds, then becomes feathered, and finally comes alive and flies away. He cites as his authorities Giraldus Cambrensis and his informant the priest Octavianus. This is a quotation from his own earlier work, in which (93) after relating the Myth he observes (94): 'In Wales (which is part of England), in Ireland and Scotland, these birds, first vague and featherless, but not without the sure and proper forms of birds, are frequently found', and again, after giving the familiar 'life-history' of their development, he remarks (95) that this has been affirmed by persons of such authority that he dares

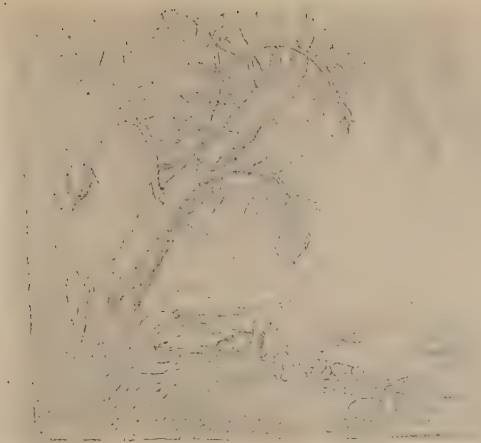


FIG. 14. Sebastian Münster, 1550



FIG. 17. Pena and de Lobel, 1570

to believe it himself, and to persuade others to do so.

Olaus Magnus (96) in 1553 mentions the Myth on the authority of 'a Scotch Historian who diligently sets down the secrets of things' (evidently Boethius) and then dismisses it without comment other than that it 'is not regarded as so strange or marvellous by the Nordic people, because in those Islands it happens continually'.



FIGS. 15 and 16. G. Rondelet, 1555. Reproduced by Gesner, 1558.

In 1555, Rondelet published the second part of his work on marine fishes (97) in which he describes both *Lepas* and *Balanus*, and gives curious figures which I reproduce in Figs. 15 and 16. His figure of *Lepas* (Fig. 15) represents it without a stalk sessile upon a rock with the cirri clearly indicated. It was doubtless one of the representations, if not the identical one, complained of by Plancus in 1739 (see p. 98) as not showing the typical stalk. That of *Balanus* (Fig. 16) is even more fantastic, the shells being melon-shaped, and showing two or three long cirri to each shell. The whole of his descriptions were reproduced in the 1558 volume of Gesner, together with the observations of

Belon, and as I have dealt with them as at that date (see note 99), I will not enlarge upon them in this place.

In 1555 Conrad Gesner published the third book of his 'Historiae Animalium' (98), and in it he gave a résumé of the whole history of the Myth, which was elaborated at great length in the Frankfurt edition of 1617 (99) (see note 283). Gesner was an amazingly prolific compiler of immense works on the most varied subjects, and many references to earlier writers are quoted by later authorities as being 'apud Gesnerum'. A notable instance is the citation (p. 108) from St. Isidore, which was given by Vincent of Beauvais (see note 46) in a modified form, and is extracted by Schott (see *op. cit.* in note 219, p. 1143) (100), but Schott himself states that he has never been able to identify the passage in any of the works of St. Isidore (101). I have given the contribution of Rondelet (99 and 102); Belon (103) also contributed his quota to the refutation of the Myth, which he also deals with in a work of his own published in 1555 (104), in a chapter entitled 'De l'Oye Nonnette (105), autrement nommée un Cravant'. He says: 'Il est ia (*sic*) venu une commune nouvelle de certains oyseaux nommez Cravants, que le vulgaire estime estre nez de pourriecture des mats de navires. Mais ayants veu les oyseaux Cravants pondre et faire des œufs, et esclorre leurs petits: par celle manière, avons pensé dire librement nostre avis, que c'est abus de le croire.' And we may note, once more, that this is forty years earlier than the account of the Hollanders in Nova Zembla, (see p. 46 and note 151) and three hundred years later than the testimony of Albertus Magnus.

A slightly modified account is that given us in 1556 by Valeriano (106) who asserts that the leaves of a tree which grows on both banks of a river in Britain are the size of the eggs of geese, and that at the proper season of the year, falling into the water, they soften and open,

giving egress to birds hardly smaller than chicks, so well feathered that they at once fly up into the air, and no one has ever discovered whither they migrate.

Thevet, whose 'Cosmographie' (1575, see p. 32, and note 110) I refer to later (see p. 57), had in a former work in 1558 (107) recorded the phenomenon of trees and shrubs 'chargez d'ouïtres haut et bas'. His explanation was that as the tide rises twice in every twenty-four hours and submerges the trees, the oysters being glutinous lay hold of and stick to the branches, 'mais en abondance incroyable'.

There are many references in the records of the early travellers to oysters and other shell-fish 'growing' on trees. A characteristic instance is to be found in a letter, dated 1578, from one Anthony Parkhurst to Hakluyt (108) in which he says: 'I tolde you once I doe remember how in my travaile into Africa and America I found trees that bare Oïsters, which was strange to you, till I tolde you that their boughs hung to the water on which both Oïsters and Muskles did stick fast; as their propertie is, to stakes and timber.'

In 1559, Mordechai (see note 58) raised the controversy, as we have seen, among the Jews as to whether the birds are really flesh or not, and gave his vote for the former opinion.

Mizaldus, who published his work in 1567, (109) was a compiler rather than an original researcher. He records that 'in certain places in Ireland and the Orkneys which are washed by the sea there grow trees like willows, on which occur small knobs (*pilae*), which in a short while assume the appearance of birds, having the form of ducks, hanging by their beaks to the branches. Which, when they come to maturity, by their own efforts are separated and fly away, and fall into the adjoining sea. The common people of Britain call them Bernetas' (Ex historia et annalibus necnon relatione ejus gentis). He seems to have drawn his

account from Scaliger or Turner. In 1575 we get from the French botanist Thevet (110) a suggestion of local doubts. He says: 'Quant aux oyseaux que l'on dit qui croissent et prennent vie sur les arbres, les gens du pais n'en sont du tout resoluz. Toute fois y a il un arbre, qui produit une certaine matiere autour de son tronc, que ne retire pas mal aux grosses Moules de mer: les quelles au mois de Juin, estans cheutes par terre, s'engendrent ces oyseaux, qui se nourrissent vingt et cinq jours sur terre, puis vont prendre leur pasture au rivage de l'eau. Je scay bien que si une branche dudit arbre chet par terre, ou dans la mer, ces petits animaux se rangent tout autour.' Here, at last, is an attempt to record a life-history of the birds, though his terminal observations clearly refer to the shells alone.

It was at this time that the great Atlas of Ortelius, the 'Theatrum Orbis Terrarum' (111) was in course of development. In the original edition of 1570, the whole of Great Britain was disposed of in one map (No. 6) with ten lines of description of 'Hibernia', but by 1579 an independent map and a long description of Ireland appeared, the latter owing something, if not much, to one 'Danielus Rogersius' (112): this was extended in 1595 by references to Camden and to Richard Stanihurst (113) (see note 40), and these contain a pertinent clause referring to the Myth. This is translated in the English edition of 1606 (114), as follows in the 'Description', (p. 14): 'they (the geese) are bredde of the firre blocks, which are tossed along the shore in this manner: First upon the blocks you shall see as it were a certain gelly: then the reeds and other sea-weeds staying the logges, being inclosed in shels (for the better fashioning and safe preserving of them), they hang by the billes untill in processe of time they wax of a competent bigness, and be covered with feathers, either they fall into the water, or by the

benefit of their wings they lift up themselves aloft into the open aire. I myself have many times and often seen with these same eies many very small bodies of these kinds of birds hanging upon on (*sic*) blockes on the sea coast, enclosed in shells and fully fashioned. These tread not as other fowles do, they lay no egges, they never sitte. And therefore in certain places of Ireland in Lent and upon other fasting daies, it is lawfull to eat these fowles, as if they were not flesh, nor come of flesh.'

Meanwhile, in 1571 we find the Myth set forth in quotations from Boethius and Sebastian Münster (whose woodcut is practically reproduced in facsimile) in a collection of marvels edited by P. Boiasteau, Cl. de Tesserant, and F. de Belleforest (115), in a chapter entitled 'Des Arbres desquels les oiseaux naissent et les bleds croissent'. The editors observe naïvely, 'quelques pays sont plus subiets aux choses admirables (116) et desquelles la cause est cachée que les autres', and they give also a woodcut of the wheat growing out of trees which is said to have occurred in 122 B.C.

In 1578 the Scottish chronicler Leslie (117) Bishop of Ross, relates the Myth, saying that other trees besides pine grow the geese, so long as they grow in the Hebrides, and after citing Boethius at length he goes on, that in the year 1566 a branch of a tree was stranded at Stirling on which, among the mussels, were shells containing the same birds as Boethius had seen. And even as he writes a 'gravissimus vir' Dr. William Allan testifies that he has seen the same bird-forms on the keels of ships on the Lancastrian shore.

In 1583 the Spanish writer Torquemada (118), after citing the observations of Alexander ab Alexandro, Aeneas Sylvius, Chassaneux, and others, states that one André Rose is said—in a work entitled *Mapa Mundi*

by André Valuasor of Venice—to have had two of these birds, as big as small ducks, brought from Spain, but this he thinks is a mistake for England, adding: ‘car si ces oiseaux s’engendroyent en Hespagne, il en seroit bien autre bruit, et ne seroit ce miracle tant secret’ (119).

It would be unthinkable that Camden, arch-disseminator and stabilizer of local traditions—to the despair and desolation of modern topographers—should have let so sensational a story escape him, and he duly records the fact in 1586 in his ‘Britannia’, in his section dealing with Scotland and the Isle of Man. Thus: ‘Before the very south point, there lieth a pretty Island called the *Calfe of Man*, wherein are exceeding great store of those duckes and drakes which (breeding of rotten wood as they say) the Englishmen call them *Bernacles*, the Scots *Clakes*, and *Soland Geese* (120) . . .’ In his section, however, dealing with Buchan (Buchania or *Buquehan*) he elects between the arboreal and the ship’s-timber origin of Barnacles in favour of the latter, but with a reservation. He says (121): ‘Concerning those Claike-geese, which some with much admiration have believed to grow out of trees both upon this shore and elsewhere, and when they be ripe to fall downe in to the sea, it is scarce worth the labour to mention them. That there be little birds engendred of old and rotten Keeles of ships, they can beare witnesse, who saw that ship wherein Francis Drake sailed about the world, standing in a docke neere the *Tamis*: To the outside of the Keele whereof a number of such little birds without life and fethers stucke close. Yet would I gladly thinke that the generation of these birds, was not out of those logges of wood; but from the very Ocean, which the Poets tearmed the *father of all things*.’

In the same year Harrison, in his ‘Historicall Description of the Iland of Britaine’, prefixed to vol. i

of Holinshed's Chronicle (122), records that 'in Man they have great store of Barnacles'. He had sought for them vainly until May 1584, when he found them attached to a ship which had arrived in the Thames from Barbary and Cathay. He opened one and 'saw the proportions of a fowl . . . saving that the head was not yet formed, because the fresh water had killed them all (as I take it). Certainly the feathers of the tail hang out of the shell at least two inches, the wings almost perfect, touching form, so that it cannot be denied but that some bird or other must proceed of this substance.'

We are now in the period of the first Herbals, and these give us some indication of the width of spread of the conviction that geese were produced either from the fruit of trees or from rotten timber. At the same time it must be recorded that there is no mention of the Myth in Dodoens (1557) (123), nor Clusius (1576) (124), nor Tabernaemontanus (1588) (125), but in 1550 the iconography of the Myth in its fully developed form had begun with the 'Cosmographia Universalis' of Sebastian Münster (see note 89) whose woodcut shows the fruits 'conglomerated of leaves' falling from the tree and becoming transformed into birds (Fig. 14). There is little doubt that this woodcut and the accompanying text are responsible for the elaborated representations which we find in the works of Pena and de Lobel (see notes 148, 150), and which began with a small square woodcut in 1570 (Fig. 17), to which de Lobel added another and more 'convincing' illustration in 1591 (Fig. 18). I shall refer to these later, for the woodcut of 1570 was responsible for the extravagant dissertation of our own Gerard in 1597. De Lobel and Pena in their text declare that they had seen the goose-shells, not only from Scotland but in the Thames, and they give a succinct account of them, stating that the Barnacles that fall from the trees on land perish, whilst those that fall into the water turn

into geese. De Lobel states further in his 1576 edition that he had been given specimens in London by 'an industrious youth, a good citizen and merchant of Lille', by name Andreas de Fourmestreux (126). It is true that in the London edition of the 'Adversaria' of 1605 he quotes the refutation of Fabius Colonna on the authority of the zoologist Rondelet.

This refutation of Fabius Colonna in his 'Phytobasanos' (1592) is of importance, for it was accompanied by a plate of the true *Lepas* and *Balanus* (Fig. 19). The section of his work dealing with the Myth is headed: 'That the shells commonly called 'goose-bearing' are not fruits of the earth, nor are geese born from them, but are a species of marine *Balanus*' (127). His plate—and he etched all his plates himself, with remarkable accuracy, from nature—shows the true marine Barnacles, and he includes in it a representation of a rock with the Barnacles attached which strongly suggests the figure which had appeared in de Lobel's second woodcut of 1591 (Fig. 18). He evidently kept abreast of the literature of his time.

In 'La Semaine', a curious Miltonic poem (published in 1578) describing the first days of creation (128), Guillaume de Saluste, Sieur du Bartas, described the pardonable astonishment of Adam on first viewing the 'goose-tree'. The lines are worth recording.

Ainsi souz soy Boöte ès glaceuses campagnes
Tardif, void des oysons qu'on appelle Gravaignes
Qui sont fils, comme on dit, de certains arbrisseaux
Qui leur feuille féconde animent dans les eaux.
Ainsi le vieil fragment d'une barque se change
En des Canars volants, ô changement estrange!
Mesme corps fut iadis arbre verd, puis vaisseau
N'aguère champignon, et maintenant oiseau.

A translation of the work by Joshua Sylvester in 1584 (129) renders the passage thus:

So slowe Boötes underneath him sees
 In th'icy isles, those goslings hatched of trees,
 Whose fruitful leaves, falling into the water,
 Are turned (they say) to living fowls soon after ;
 So, rotten sides of broken ships do change
 To barnacles, O, transformation strange !
 'Twas first a green tree ; then a gallant hull ;
 Lastly a mushroom ; then a flying gull (130).

Again, on the first day of his Second Week (131), we find a passage, mostly overlooked by the authors, which runs:

Et cil qui va portant sur ses branches tremblantes
 Et les peuples nageurs, et les tropes volantes,
 J'enten l'arbre aujourd'huy en Iuterne vivant (132)
 Dont le feuillage espars par les soupirs du vent
 Est metamorphosé d'une vertu féconde
 Sur terre en vrais oiseaux, en vrais poissons sur l'onde.

which Sylvester (133) renders:

And there, that Tree from off whose trembling top
 Both swimming shoals, and flying troops doe drop :
 I mean the Tree now in *Juterna* growing,
 Whose leaves disperst by *Zephyr's* wanton-blowing,
 Are metamorphos'd both in form and matter ;
 On Land to Fowls, to Fishes in the Water.

The learned French commentator upon this poem, Goulart (134), observes upon this second quotation (p. 98): 'Iuterne—C'est l'Ecosse vers les Orchades que *Mela* liv. 3, appelle Iuuerne, où naissent les oiseaux ici mentionnez, qui sont créez des feuilles ou du bois mesme d'une certaine sorte de sapin, et ce bois ou ces feuilles venans à tomber en l'eau, il en sort des poissons, et sur terre des oiseaux comme petits oisons. J'estime que ce sont ceux que les Ecossais appellent aujourd'huy Bernaques, ou Bernacles.' In his translation of this commentary Thomas Lodge (135) misreads 'sapin' and says that the creatures are 'created of leaves or wood, especially of the Oake'.

In 1591 that omnivorous collector of marvels and divinations, Johannes Baptista della Porta, dealing with a long list of animals which are spontaneously produced by moss and slime, records the geese which are thus evolved—plucked out of the slime of semi-putrid keels, having been born in shells, and which, when washed by the waves of the sea, come out of their shells, but which die if they fall upon dry land (136).

In the following year, 1592, the Italian Botero records the Myth in his section upon the Hebrides, taking his facts from Boethius, with whom he opines that the birds evolve from worms bred in logs, and notes that they are lawful as Lenten fare (137). Lupton, in his 'Notable Things' in 1595 (138), records that 'in the Islands of Ireland and Orcades there be certain trees, much like unto willow trees, out of which come forth certain little hairs, increasing little by little into birds, having shape of ducks, hanging upon the bough by their nebs or bills, and when they are come to full perfectness, they fly away of themselves, and fall into the next seas, which birds we call Barnacles. This is related by the people who dwell there.'—Note the cautious Herodotian touch!

In the same year—1592—there appeared what is, perhaps, the most important early refutation of the Myth, for though several of the early authors beginning with Neckam (see p. 11) and Albertus Magnus had denied it, it was Fabius Colonna in his 'Phytobasanos' (139) who dealt with it seriously and at length, and it is his refutation which, as we shall see, has been the most constantly quoted by the opponents of the fable. His attitude is clearly expressed in the caption of his section already quoted (see p. 36), and his argument is well arranged and worthy of especial record. He relates the perturbation of his mind in cogitating over the matter, seeing that it had been clearly stated by learned doctors, and accepted

by others, that the fruits of a tree growing upon rocks by the sea, as depicted by them, were shells, which had their origin on the keels of ancient ships, 'which statements are contradictory to one another and are to be regarded as impossible. The fruits of a terrestrial tree cannot be shells of the sea, and if they were, they would not adhere to the keels of ships. Imbued with this opinion I began to view these shells in some perturbation of spirit.' Confined to his study by bad weather he took the opportunity to study the work of Rondelet and to compare the shells with the descriptions of them to be found in the works of other authors (Figs. 15 and 16). He instructed his servant to go out and collect on the shore and bring him whatever he found, and among the spoils were these shells, which he proceeds accurately to describe and to figure (Fig. 19). He calls attention to their similarity to almonds growing upon the twigs of trees, which resemblance has contributed to the vulgar belief. But it is 'a marine shell, evolved in the frothy mud of the sea, which adheres like all shells to wood, stones, and so on'. He then describes the contained animal, though whether it had a mouth and other details he was unable rightly to see, but he observed the numerous cirri, which being very like the curved feathers of a cock had been mistaken for real feathers and rudiments of growing birds extended from the shells. After elaborating these points he goes on: 'On these accounts therefore it is certainly a testaceous animal, not the fruit of a tree, as it has been figured by others, for these shells if cast upon dry land speedily die by reason of the deprivation of moisture . . . it is to be concluded that the assertion that geese are born of these shells is false : they are thought to be thus evolved in Scotland and in Britain, places far away from us, and therefore likely to meet with credence, but they are to be found in our seas, *e.g.* in "Prochytae insula praesertim" (Procida, in the Bay

of Naples) of all ages and sizes, not only adherent to boughs, stones, and keels, but separated and floating about as Ferdinand Imperato (see p. 42), and others have shown.' I have quoted enough of the five pages which Colonna devotes to the subject to make clear how accurate were his observations, and how temperate and convincing were his arguments, some of which I relegate to the note (139).

In the satires of Bishop Hall published in 1597 (140), in his lampoon upon the son of Lolio we find

Nor hath some bribed Herald first assign'd
His quartered Arms and crest of gentle kinde
The scottish Barnacle, (if I might choose)
That of a worme doth wax a winged goose.

In the same year we find the Myth figuring in the curious dialogues of Simon Majolus (141). His *Eques* observes, quoting Vincent of Beauvais, 'Very wonderful is what serious persons have recorded of the Barliathe, or Berneca which are birds growing upon wood, which the common people call Bernestas, or Bernecas'. According to him the origin of the birds resides in the 'humor crassus' or rosin of the wood which, when it thickens, produces birds the size of larks. Their 'life-history' is as hitherto recorded, and they float about until maturity when they move themselves and break away and grow and strengthen up to the necessary form. His other authorities appear to be Ortellius and Odericus. *Theologus* then quotes the account of Jacques de Vitry, bishop of Acre (Achonensis), pointing out that unless they speedily reach the water they cannot live. He further observes, quoting his author, that it is to be noted that they do not grow high up on the branches, but attached to the bark and trunks of the trees, growing by the moisture of the tree and from dew, and that they grow feathers and break away from the wood. *Philosophus* then contributes the

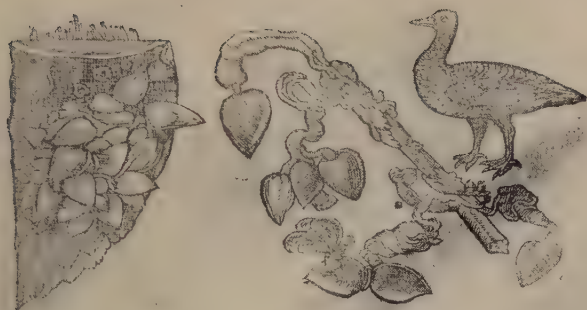


FIG. 18. De Lobel, 1591



FIG. 19. Fabius Colonna, 1592

story of the walking leaves of Pigaseta (cf. Duret, note 163), and *Eques* replies with the account of the fruits fallen in the water of Olaus Magnus, but then, perhaps pardonably weary of the subject, he remarks: 'Let us turn from those birds, an it please you, of which the nature is rather unknown, and concerning which the authority of the writers may very easily be leading us into error.'

In the equally curious Dialogues between a 'Theoretician' and a 'Mystagogue' written by Bodin in 1596 (142), in answer to the question of the Theoretician 'What do you think about the trees in Scotland which bear ducks?' the Mystagogue replies that many persons have thought that the trees of the region of 'Quinquelden' (see note 77) bore fruits (*pommes*) which, fallen into the water, produce birds, but he sagely corrects this view. He informs the Catechist that the fruits merely produce shells, which in time open and produce 'clak-guise, c'est à dire oye clakis' (he is quoting Boethius), he had himself doubted this, but he was convinced by the geographer Ortelius (see notes 111-14) who showed him the shells containing the geese, which had been brought from Antwerp, and he compares them with mussels from which they differ only in the fact that Barnacles leave their shells to become geese, whilst Mussels (*mucles*) do not. He declares that he had been a misbeliever until Ortelius showed him the shells 'even though the Scotch Ambassador, of whom he made inquiries, assured him that it was a fact'. Later on the Mystagogue tells him that 'Foucques' (Coots) are born 'assiduellement' from rotten wood and fragments of ships, and develop, attached by their beaks, 'like an apple by its stalk'. 'Peut-on', observes Guettard (see note 279), 'renfermer plus d'absurdités en si peu de mots?' Deslandes, in 1736, was the first 'observer' who derived the geese from mussels (see note 266).

Ferrante Imperato in 1597 (143) credited another mollusc with collaboration in the phenomenon, describing 'Telline pedate. Tellinae commonly known for their use as food, similar to the sessile forms as regards the enclosed animal, but differing in that they have five shells instead of two, connected by a membranous substance' (*chitin*), and he gives an excellent



FIG. 20. Ferrante Imperato, 1597.

diagnosis of the external anatomy of the Barnacles (with striking woodcuts (Fig. 20)), which he happily describes as almond-shaped (*di forma amendolare*) and which are attached to timbers, and often to one another as branches to a stem, and live like the animal-plants (*piante animali*), concerning which 'the foreigners of northern lands entertain the conceit of volatile animals which fall into the water when mature, and grow in the form of ducks, not otherwise than many flying insects develop from matrices (*madri*) furnished by living plants and forming integral parts of themselves'.

And this brings us to the great English gardening classic, the 'Herball' of John Gerard, published in 1597 (144). It is not for me to discourse upon the scoundrelly manner in which Gerard 'obtained' this work in manuscript after the death of Dr. John Priest, who had translated it from Dodoens, and, after pulling it about and rearranging the sections more or less after the plan of de Lobel, gave it to the world as his own, with woodcuts obtained, no one quite knows how, from abroad, where they had done duty illustrating the earlier works of Dodoens, Tabernaemontanus, de l'Obel (or de Lobel), and others (145). The fact remains that—with the second edition of 1633, in which the chaos and trifling introduced by Gerard were reduced to something like order by Thomas Johnson (146)—the work remains one of the prizes of the horticultural bibliographer and is one of the most authoritative ancestors of all later works on gardening in England.

Chapter 167 is entitled 'Of the Goosetree, Barnakle tree, or the tree bearing Geese' and occupies the leaf 1391-2, concluding Gerard's work. The essential—from our point of view—parts of his description are as follows: 'There are found in the North parts of Scotland and the Islands adjacent, called Orchades, certaine trees whereon do grow certaine shells of a white colour tending to russet, wherein are contained little living creatures: which shells in time of maturity doe open, and out of them grow those little living things which, falling into the water, doe become fowles, which we call Barnacles: in the North of England, brant geese; and in Lancashire tree geese: but the others that doe fall upon the land perish and come to nothing.' Thus much by the writings of others, and also from the mouths of people of those parts which may very well accord with the truth.

'But what our eies have seene, and hands have

touched, we shall declare. There is a small island in Lancashire, called the Pile of Foulders (147), wherein are found the broken pieces of old and bruised ships, some whereof have been cast thither by ship-wracke, and also the trunks and bodies with the branches of old and rotten trees, cast up there likewise; whereon is found a certain spume or froth that in time breedeth certaine shells, in shape like those of the Muskle, but sharper pointed and of a whitish colour, wherein is contained things in forme like a lace of silk finely woven as it were together, of a whitish colour, one end whereof is fastened unto the inside of the shell, even as the fish of Oysters and Muskles are: the other end is made fast unto the belly of a rude masse or lumpe, which in time cometh to the shape and forme of a Bird: when it is perfectly formed, the shell gapeth open, and the first thing that appeareth is the aforesaid lace or string; next come the legs of the bird hanging out, and as it groweth greater, it openeth the shell by degrees, till at length it is all come forth and hangeth merely by the bill: in short space after, it cometh to full maturitie, and falleth into the sea where it gathereth feathers, and groweth to a fowle bigger than a Mallard, lesser than a Goose, having black legs and bill or beake, and feathers black and white, spotted in such a manner as in our Magpie, called in some places a Pie-Annet (see note 105), which the people of Lancashire call by no other name than tree goose For the truth hereof, if any doubt, may it please them to repair unto me, and I shall satisfy them by the testimonie of good witnesses.' He then proceeds to describe, from Dover and Romney, 'the trunks of an old rotten tree' covered with 'crimson bladders' to which were attached 'shell fish fashioned somewhat like a small Muskle, but much whiter, resembling a shell fish that groweth upon the rockes about Garnsey and Garsey, called a Lympit'. These shells on examination in

London were found to contain either 'living things without forme or shape' or 'living things that were very naked, in shape like a bird: in others, the Birds covered with soft downe, the shell halfe open, and the Bird ready to fall out, which no doubt were the Fowles called Barnacles'. These were evidently *Balanus*, the Acorn Barnacle growing upon the Sea Anemone, *Tealia*. He reserves his 'testimonie' as to the earlier part of his description, but adds, 'that which I have seen with mine eies and handled with mine hands, I dare confidently avouch and boldly put down for verity', but he concludes that if any one wishes to disagree with him as to the origin of these phenomena, he is not prepared to disagree with them.

Gerard, *more modoque suo*, took his woodcut from the 'Stirpium Historia' of Mathias de Lobel, published in 1570, and added to it the birds within the shells, and we shall presently see how important a part iconography has played in the development and perpetuation of our Myth. Gerard's wood-cut (Fig. 21) is so remarkable an exaggeration of de Lobel's cut that it may be said to rank among the sixteen 'original' illustrations in his 'Herball' (148).

Sir Ray Lankester observes upon Gerard that he is evidently attempting to co-ordinate the legends of the tree with the truths of the Barnacle-covered logs of driftwood, but does not suggest that he has seen or known people who have seen, the Barnacles attached

Britannica Concha anatifera.
The breede of Barnacles.



FIG. 21. John Gerard,
1597.

to the branches of living trees; and incidentally Sir Ray disposes of the suggestion that Barnacles might attach themselves to the branches of trees growing by some of the sea-water lochs of Scotland, just as oysters become attached to the mangrove trees in West Indian swamps (Lankester, *op. cit.*, p. 122).

In the 1633 edition of the 'Herball' Thomas Johnson gives a different woodcut of the Barnacle tree accompanied by its goose (149) taken from the 'Icones Stirpium' of de Lobel (Fig. 18) (150), and remarks that Gerard 'out of a propense good will to the publique advancement of this knowledge endeavoured to perform therein more than he could well accomplish, which was partly through want of sufficient learning' ('To the Reader', fol. ¶ ¶ ¶). In his addendum to Gerard's article upon the 'Barnacle Tree', he disposes of the Myth by reference to 'some Hollanders' who 'in their third voyage to find out the North-East passage to China and the Moluccos, about the eightieth degree and eleven minutes of northerly latitude, found two little islands, in the one of which they found abundance of these Geese sitting upon their eggs, of which they got one Goose and took away sixty eggs (151). Now the shells out of which these birds were thought to fly, are a kind of *Balanus marinus*.' We have seen that Fabius Colonna in his 'Phytobasanos' in 1592 (see note 139) had already made this observation, and Johnson is quoting his work.

Between the publication of Gerard's edition (1597) and Johnson's revision (1633) several authors had dealt with the Myth. In 1599 Martin del Rio boldly attributed the phenomenon to magic, though he admitted that the geese thus produced were imperfect (152). Baptista Fregoso, Duke of Genoa (1509-87) (153), referred to by the authors as 'Fulgosius', had, in a much-quoted passage, called attention to trees in the Orkneys 'very like willows . . . on which arise

certain little balls, which gradually grow into birds having the form of ducks, . . . which at maturity by their own efforts get away from the trees, and fall into the sea and also fly away'. He records their use as food in Lent, and the confutation of Albertus Magnus, but he opines that the facts are vouched for by so many serious persons who have seen them that the matter is not one for doubt. (Editions of 1541 and 1604 quoted.)

The geographer Bertius in 1600 devotes a long passage to the Myth in his 'Description of Ireland' (154). After describing a fabulous fountain, he proceeds to give the account of Giraldus Cambrensis—that upon the logs which have floated in the sea a resin first appears, which shortly hardens into a crust in which are born little animals which acquire first life, then beaks and feathers and wings, and then either fly in the air or swim in the water, 'nor are these animals generated in any other way'. He had seen many half-formed, which, had they been perfect, would have flown like other birds. He then gives the account of Scaliger, proceeding 'the inhabitants of the Pyrenean shores (Vascones) call them Crabrans, the Britons Bernachiae, it has become proverbial, and may be reproached to any idle person, as though they were neither flesh nor fish' (*op. cit.* in note 83 and p. 26). He deals with the bird-bearing shells submitted to Francis king of France and goes on to the effect that 'in the bay of Copenhagen (in Sinu Codano) certain aquatic birds are wont to congregate in the maritime trees, and there take their fill of love, and their sperm falling into the sea becomes transformed into birds, especially in the quiet coves of the shore'. 'This', he concludes, 'will not seem absurd to any one who has investigated the nature of silkworms.' (!)

Aldrovandus, in 1603 (155), in the third volume of his 'Ornithologia', has a long account (cap. xxiv, pp. 174-87) of 'Geese in general', to which reference

A detailed black and white illustration of a tree with pinnate leaves and a large, curved seed pod hanging from a branch. In the foreground, a small animal, possibly a rabbit or deer, is shown grazing on the ground near a body of water.

This scientific illustration, likely from a 19th-century natural history work, depicts seven distinct figures. Figures 1 through 6 are various views of mollusk shells, including lateral, dorsal, and ventral perspectives, as well as internal views showing the arrangement of siphons. Figure 7 is a detailed drawing of a bird-like creature, possibly a waterfowl, standing on its legs. The entire illustration is rendered in a fine-lined, engraved style.

FIG. 23. Ulysses Aldrovandus, 1606.

has been erroneously made by writers on this subject. His account of the Myth comes earlier (cap. xxiii, pp. 165-73) and it gives a very complete history of it, entitled 'De Branta seu Bernicla', accompanied by a woodcut (Fig. 22) on p. 174, and on p. 548 he gives a figure which appears to be a dissection of de Lobel's later woodcut (Fig. 18) with additions (Fig. 23). This is lettered 'Concharum Anatiferarum seu potius Anseriferarum variae icones nec non et Berniclae avis ex concharum earum una natae effigiis ponanda fol. 174'. He says in his opening passages that he has been persuaded of the Myth on the faith of learned and honest eye-witnesses (156), and at pp. 171-3 he reviews all the knowledge and information recorded down to his date; he says: 'Some say they copulate like other birds, others that they come of rotten wood, others from decayed fruits of certain trees, others from shells.' He records the opinion of Aeneas Sylvius (cf. *ante*) upon the evasiveness of miracles, and quotes the dissent of Albertus Magnus. He supplies us also with a full account of the Hollanders, who in 1596, having seen the Brant Geese hatching their eggs on the shores of Nova Zembla, robbed their nests and brought home a bird which they had killed with a stone. At the same time, he faithfully records all the testimony in favour of the Myth and relates the story of the Irish priest, by name Octavianus (told by Gesner, *op. cit.*, in note 283, p. 96), who assured him (Gesner) on his oath sworn on the Gospels that he had not only seen the tree geese, but had handled them in the shell-covered condition. Indeed, in this long and learned disquisition nearly all the authorities I have hitherto cited are quoted and discussed.

But Aldrovandus did not leave the matter there; in a later work, published in 1606 just before his death (157), he repeats and gives an explanation of the dissection of the larger woodcut of de Lobel (Fig. 18) which

occurred at p. 548 of the 'Ornithologia' (Fig. 23). It is headed in this volume 'Conchae anatiferae trunco adhaerentes ex Lobelio' and he gives an 'Explanation of the Plate' quite in the manner of a modern scientific paper, referring to the undissected plate at p. 259 of vol. ii of the 'Icones Stirpium' of 1591. Thus: Fig. 1. The shell in three parts with the umbilical cord. Fig. 2. The same but the shell divided into five parts. Fig. 3. The shell is open and the umbilical cord is inserted. Fig. 4. A five-chambered shell, with that part where the feathers sprout forth split open. Fig. 5. The foetus is shown between the valves of the shell. Fig. 6. The embryo or foetus divested of its shell. Fig. 7. 'Quite newly given' the adult *Bernicula* goose born of this shell. And he concludes that there are other British shells similar to it and closely related to it. As Max Müller has observed, 'Aldrovandus, after weighing all the evidence for and against the miraculous origin of the Barnacle Goose, arrives at the conclusion that it is better to err with the majority than to argue against so many eminent writers' (158).

The putrefaction origin of creatures, and among them of geese in Ireland, is elaborately discussed by Taurellus in 1604 (159), in a chapter headed 'The double procreation of plants and animals'. In this, after discussing the phenomenon at large, he says: 'It is not any kind of putrefaction that produces any kind of animal: some worms come out of wood, others out of putrid cheese. The procreation of mice differs from that of fleas. Wonderful is what is recorded of the geese, which are procreated out of a certain tree in Ireland. So also in the leaves of our trees various genera of worms are generated. There are as many kinds of putrefaction as there are putrid things, and by reason of this difference various animals are also born.'

Claude Duret had published in 1605 several figures (160) which I reproduce, illustrating variants of the

Portrait de l'Arbre, lequel estant pourry, produit des vers, puis des canards vivans & volans.



FIG. 24.

Portrait de l'Arbre qui porte des faucilles, lesquelles tombées sur terre se tournent en oyseaux volants, & celles qui tombent dans les eaux se muent en poisson.



FIG. 25.

Portrait de l'Arbre qui produit de ses feuilles Canards vivans & volans.



FIG. 26.

Portrait des Conches, qui produisent des oyseaux.



FIG. 27.

Claude Duret, 1605.

Myth. We see in one the genesis of ducks (*canards vivans*) from worms bred in rotten timber that had fallen into the water (Fig. 24), and in another the metamorphosis of the fruits, turning into fishes when they fell in the water, and into birds when they fell on land (Fig. 25), and a third in which only birds are produced (Fig. 26). Duret's reproduction of Gerard's figure (Fig. 27) shows us the influence of iconography upon the Myth. De Lobel's small cut in the first edition of his 'Stirpium Adversaria' in 1570 (Fig. 17), was an insignificant little affair, and was reproduced in his 'Stirpium Historia' in 1576 (161). In 1591 he reproduced it again, adding to it the larger woodcut (Fig. 18) which Johnson substituted for the smaller one in the 1633 edition of Gerard (162). Then Gerard in 1597 elaborated the small woodcut (Fig. 21) and added, somewhat indistinctly, the little birds coming out of the hanging shells. In 1605 Claude Duret re-drew Gerard's 1597 woodcut (Fig. 27), and showed finely- and fully-formed birds where Gerard had only indicated them. It is thus that pictorial history is made (163). I regret to say that it was not only the early writers who thus 'improved' upon one another. In 1873 Galton, in the article I have referred to (see note 61), purported to reproduce Gerard's figure (Fig. 28) and, as you may see, his protruding birds (increased to three) are even more clearly defined than in the woodcut of Duret.

Contemporaneously with Duret—in 1605—Wolfgang Franzius (whom Guettard (see note 279) entitled 'the first of the enlightened') in his curious work on the zoology of the Bible (164) observes that though the story is derided, it has been advanced by serious persons worthy of reliance, and he has to admit that such a goose was sent some years previously to the King of Poland—in itself a convincing argument—but having read the account of the Hollanders—for

which all must be grateful'—he rejects the Myth, arguing out its impossibility at length, and he opines that, if animals are really born of putrefaction, it is because it is their natural habitat and the source of their food.

*Portrait de l'Arbre de l'Isle de Cimbubon, qui porte des
feuilles qui vivent en cheminant.*



FIG. 28. Galton, 1873.



FIG. 29. C. Duret, 1605
(see note 163).

In the same year, 1605, Pincieri published his curious work, the 'Aenigmata' (165) which opens with one devoted to our Myth.

Sum volucris, nam plumosum mihi corpus, et alae
 Quarum remigio, quum libet, alta peto.
 Haud tamen e volucris foecundo semine nascor,
 Haud ovi tereti in cortice concipior.
 Nec mihi componit nidos pia cura parentum,
 Nec primis implet rostra tenella cibis.
 Sed mare me gignit, biforis sub tegmine conchae,
 Aut in ventre trabis, quam tulit unda diu.

Illud idem tenero mihi pabula praebet alumno ;
 Pabula jam grandi suggerit illud idem.

And in his 'Solutio' he recounts the Myth with long extracts from Boethius and Scaliger, adding that he had had specimens given to him by one 'Erasmus Stoverus, conciliaris Dillebergensis', in which the little birds with all their external parts perfect were to be clearly seen lurking.

I cannot help thinking that it must have been the filial devotion, of which he was so shining an example, which led Joseph Justus Scaliger, the son of Julius Caesar Scaliger, who is said by his biographers Richard Copley Christie and J. E. Sandys (166) to have been 'the greatest scholar of modern times', to give a modified assent to the Myth. It is of him that Mark Pattison wrote, in describing his death, 'the most richly stored intellect which had ever spent itself in acquiring knowledge was in the presence of the Omniscient' (167). Yet in a letter dated 'Nonis Martii, 1608'—and he must have been aware of the refutation of the Hollanders of 1596—preserved in the Elzevir collection of his letters (168) he says 'no geese are produced from shells, but from the putrefaction of ancient ships, to which shells adhere, it is certain that geese are born. Also that goose-bearing trees exist in the northernmost part of Scotland, where precisely there are no trees, has been falsely pretended by the sycophancy of writers.'

A peculiarly turgid philosopher, one Libavius in 1610 (169) propounded a new theory that creatures, and among them 'the British Geese which are born of shells and worms in a certain sea, are created of water and earth mixed. In this way all dissensions can be reconciled.' Birds being so created fly over the land and therefore may be said to be created of earth. (His style is of an unparalleled obscurity). They are divided into two classes, one aquatic and the other

terrestrial, the former principally made of water, the latter of earth. Geese, swans, and ducks are more full of drought and fire than other birds, and therefore they delight in water to correct this. He goes on with a quaint theory that they then shed their excreta into the water, which become the food of fishes, and in some strange way this has led to the presence of innumerable geese produced by worms in the seas of Britain, Scotland, and Ireland, through divine power. These birds he calls 'ortygometras' (ὀρθυγομήτρας), and he gets into interminable arguments about them and as to how they arrive at their development. 'What wonder is it if we consider that the Scottish geese are "ortygometras" generated in an ambiguous manner? Either genus is sterile, neither producing nor laying eggs.' And he quotes Gesner as ascribing their origin to fungi of rotten ships 'nowhere else than in Ireland, England, and Scotland, where the trees are upon which these fungi grow. Some say that this tree is in the Orkneys. As a fact, God created such birds also out of the waters of the Red Sea.' The corollary of all this strange rigmarole is that the miraculously furnished quails of the Mosaic wilderness were of the same nature as the Barnacle goose!

Heinrich Kornmann in 1611 (170) was a compiler rather than an original writer, but he gathers from his authorities that the fruits falling on land perish, whilst the rest become ducks; they swim at first, and then for a space live under water, after which they rise and become aerial. His view is that the whole tree is, *ab origine*, miraculous. There are other 'authorities' who have derived diving birds from the fruit or the shell (cf. Chassaneux and note 87). The account of Kornmann was taken from Fulgosius (Fregoso), but he honestly records that Albertus Magnus had contradicted the story (*aliter scripsit*).

Twenty years after the first pronouncement of

Giovanni Battista della Porta (see p. 38, and note 136), he returned in 1611 to the theme in his 'Natural Magic' (171). He tells us that 'The old cosmographers, chief among them Saxo Grammaticus, wrote of this tree so that no modern may esteem it to be a lie. But people to-day say that not only in Scotland but in the river Thames (Temesi) which flows past London (Lodini) are found certain shells with two covers (bivalves) with a rather thick stem . . . born of moss (? *musco marino*, coralline) and of putrid mud, which are attached with a stalk like that of a mushroom by which they imbibe their nutriment . . . others speak of branches of trees which are uprooted by the flowing tides, and return, being cast on shore when the tide turns, and those which remain on shore die, and those which are drawn back by the changeable waves leave their shells alive (this is somewhat elliptical!) and become geese, or a kind of bird similar to it.' Then he repeats Gesner's account and the observations of Paracelsus on birds produced by heat like the Phoenix, ending with the citation of Ficino (*vide ante*, p. 16, and note 54) from Albertus Magnus anent the birds produced by the putrefaction of the Salvia.

It took but little to convince Caspar Hofmann (172) who in 1619, referring to the Scottish ducks recorded by Aldrovandus and others, says they are shells 'which I have often had in my hands ; so that it is seen to be worthy of credence. What more fully convinces one is the fact that this shell is red or sanguineous, etc.'

Caspar Bauhin in his classical Botany (173) (1623) devotes an entire Section to 'Arbores anatiferae', which he divides into three sub-sections. 'I. The tree out of the putrefaction of whose wood worms, and from these living and flying ducks, are generated.' He refers to the plate of Duret (Fig. 24), and cites Boethius and Cardanus, which accounts for his statement that Polydore Vergil regarded it as fabulous. He also gives

the views of Olaus Magnus, Colonna, and the Hollanders, *inter alios*. 'II. The trees from which the fruits fallen into the water produce ducks.' He refers again to Duret's plate (Fig. 26), and cites Aeneas Sylvius and Münster—which accounts for his statement that Saxo Grammaticus also recorded it—and many others. In this sub-section he describes a tree whose fruits, not unlike oysters, grow in such quantity that the leaves cannot be seen, and he further records that 'in Guiana oysters grow on trees and not on the earth, which is most frequently the case in western India and other places, which tree Thevet has described in his *Gallia Antarctica* with a figure of this foreign fruit' (see p. 31 and note 107), which he says is also described by Pliny (bk. xiii, c. 25, par. 8; see notes 32 and 281). 'III. The tree whose leaves if they fall on land are transformed into flying birds, and if into the water, into fish.' This again he has taken from Duret (Fig. 25).

In 1613 we find another poetical record of the Myth in the 'Twenty-seventh Song' of Michael Drayton's 'Polyolbion', where he says :

Whereas those scatter'd trees, which naturally partake
The fatness of the soil (in many a slimy lake
Their roots so deeply soak'd) send from their stocky boughs
A soft and sappy gum, from which those tree-geese grow
Call'd Barnacles by us, which, like a jelly first
To the beholder seem, then by the flexure nurs'd
Still great and greater thrive, until you well may see
Them turn'd to perfect fowls ; when dropping from the
tree

Into the merry pond which under them doth lie,
Wax ripe, and taking wing, away in flocks do fly.

The sixteenth-century writers were not allowed to go unchallenged. Thus in 1615 Ferdinand de Cordova, in the course of his inquiry into the matter of the Phoenix, alludes to the 'mendacious statements' concerning the 'Bernestae' made until the refutation

of the Myth in 1596 by the Hollanders, and points out the necessity of caution in believing things 'abhorrent to common nature' (174). But three years later, in 1618, Fortunatus Licetus (175) took up the cudgels in defence of the Myth in his work devoted entirely to spontaneous generation, though he respects its contradictors. He gives a long account of it from 'Turnerus' (see note 91), quoting Giraldus and the priest Octavianus with a very full résumé of Boethius, and cites from the last-named, in proof, the fact that the Barnacle-bearing log was deposited by order of the lord of the manor 'in the church of "St. Andreas Terae (*alias Tyroe et melius; id pago cuidam nomen est*)"' where it remains to this day'. He gives all the early references including an Italian translation of du Bartas (see note 186), and accepts the Myth because he had been given specimens by one Laurentius Pignorius, seeing that 'there is nothing repugnant to the nature of ducks that they should evolve spontaneously' (176). In a further passage (177) he refers to 'an assent given *antea* to the vulgar opinion that Barnacle Geese were born of wood', and gives full prominence to the arguments of Albertus Magnus and Gerhard de Vera—but he is not convinced—he merely supposes that the birds recorded by Albertus and de Vera were superficially similar to, but not the same as those of whom the Myth is recorded.

In 1614 du Chesne published his great 'History of Great Britain' (178), in which he adopts the view that the geese are bred, not of a fruit which comes to maturity on the tree, but of worms which have their origin in wood, disagreeing, he tells us, with Saxo Grammaticus, Aeneas Sylvius, Cardanus, Giraldus, and Boethius, whose works he would seem to have read somewhat superficially.

In 1628 Balthasar Bonifacio (179) stated that it was from the leaves of trees 'as the British aver' that oysters (*sc.* mussels = *ostreum*) developed, which pro-

duced little ducks (*anaticula*) which live equally in air or water or on earth, and this he says is 'one of those great miracles of Nature which are worthy of all our admiration'.

Count Maier (or Mayer) (Michaelus Maierus) had published a monograph on the subject, entitled 'De Volucris Arborea' in 1619 (180), in which he solemnly set forth the whole Myth, stating that he had found and opened a hundred of these goose-bearing shells. I have had to relegate to the note (180) Max Müller's views on the book and the author's apologia, but it may be said that his view was that the birds were generated by heat and the omnipotence of God acting upon the resin in the wood. He says: (Jonston's Translation; see note 183) 'the Material cause of the generation of this Tree-goose, is that clammy matter of the wood of Firre or the Rosin and pitchy substance of it, upon which the outward sun's heat doth work; and the internal heat increased in the corrupt matter'.

One would have supposed that the addendum of Johnson in the 1633 edition of Gerard's 'Herball', and the works of the other refuters would have finally disposed of the Myth, and indeed grave doubts began, as we have seen, to assail even authors who could not resist tabulating so sensational a phenomenon. In 1632 the learned Jonston endeavoured to give an impartial account of the matter (181). He says that there is much repetition among the pundits concerning the bird ('de ave Bernichia') which grows on the Island of Pomona (182) in Scotland towards the North. He gives an impartial résumé of the authors who support it and of those who do not; he quotes all the passage of Boethius, and gives an account of the Hollanders of 1596, ending: 'it is permitted to you, O Reader, to judge for yourself: for my part I revere the power of God, and at the end of this section by way of Appendix I give something from

the work of Maierus "De Volucris Arborea". This appendix consists of a reprint of Mayer's work (see note 180) from cap. iii (p. 30) to the end of cap. v (p. 62). A translation of Jonston's work was published in 1657 (183).

But in 1635 the Myth found another learned defender in Joannes Eusebius Nierembergensis (184) who, after dealing with Irish trees whose leaves falling into the water become fish (which he had learned of from one 'vir summa eruditione spectabilis', cf. Duret, note 160) goes on to describe the Barnacle geese. 'What is there wonderful in it? Just as plants are always changing into one another, so above ground animals evolve from one another' (185). He cites all the authorities, especially Münster's 'fruit conglomerated of leaves' (see note 90), and gives a free rendering of du Bartas in four lines :

Il Boote cose perle gelate
Piagge vede volar gli augei nomati
Gravagni, e figli d'arbuscei creduti
La cui fronda s'inalza in mezo a l'acque (186).

He cites the Ephemerides of Aristotle which are born of trees, and the lamb-bearing trees 'which bear pumpkins and flesh simultaneously' observed by Odoricus (187) in the voyage he made to the Grand Cham (according to Ramusius), and goes on, 'If this seems incredible, there are trees in Ireland which produce birds, and could produce such pumpkins also' (188). And later on he returns to trees in Scotland, and in England also, which produce round, violet-coloured fruits like 'curcubitae' (*i.e.* gourds) from which, when ripe, the bird emerges. 'And I believe this all the more as I heard it from persons of position, and worthy of credence, than if I had seen it with my own eyes. So, therefore, out of living plants many animals are born' (189).

There were not wanting authors who endeavoured to reconcile the Myth with fact, and accordingly in 1636 we find Daniel Sennert (190) recording it. He says, 'No one has seen the nest or eggs of the Bernicla, because they owe their origin in a manner spontaneously to the work of Barnacles.' He cites the authorities, Giraldus, Boethius, Scaliger, Pena and de Lobel, Mayer and Clusius, and after balancing the pros and cons, he says, 'the truth is that those geese do not come from rotten wood, but from shells which adhere to it', and goes on with the ingenious theory that the geese seen in Nova Zembla by the Hollanders in 1596 were geese which had been born from Barnacles in England, observing that it would be quite as easy for the Creator to make shells which should give birth to birds as to make the shells themselves' (191)—and he proceeds to discourse in defence of the Scythian Lamb-tree.

Sir Thomas Browne—who believed in the spontaneous generation of mice by wheat—in his 'Vulgar Errors' (192) in 1646 appears to have had an open mind upon the subject, merely suggesting an 'Enquiry'—'whether the story of Bernacles and Goose-trees be not too much enlarged'.

Unlike Joseph Scaliger, Jean, the son of Caspar Bauhin, did not scruple to differ from his illustrious father (see p. 56 and note 173). In the work in which he collaborated with Cherler (193) in 1650, he heads his chapter on the subject 'Shell-bearing or Duck-bearing trees falsely so-called'. He speaks of the shells which are called goose-bearing, in which appear what look like feathers or the gills of fish. He cites various authorities for the Myth, among others 'our most illustrious prince Frederick Duke of Wurtemberg and his nobles, who brought the shells to us from England (see note 231); persuading themselves that birds were generated out of them'. He quotes

Boethius and his 'force of procreation' (*vis procreandi*) which is in the sea (see p. 23) and is responsible for so much, also the misleading statements of de Lobel, with the confutations of Rondelet and Colonna, quoting the appreciation, from the former, of Barnacles as food by men and women who are fastidious about what they eat (see note 99). The authors reproduced the plate of Colonna (see Fig. 19) 'Balani sive Glandes Columnae' and gave also another representation of *Lepas*.

The Myth makes its appearance in the works of the poets of this time when they are sharpening their wits at the expense of the Scotch. Thus in 1651 Cleveland (194) ends his poem 'Rebellis Scotus, the Rebel Scot, or Satire upon the Nation in General':

A Scot when from the gallow tree got loose
Drops into *Styx* and turns a Solun-geese.

and two years later Hookes (195) in the 'Rout of the Disloyal Partie of Scots at Dunbare', gives us an echo of Cleveland:

But no great matter, let them stay on shore
Drop into *Styx*, like *Soland-geese* swim o're.

In the memoirs of Ann, Lady Fanshawe (1600-72), we encounter the following passage (under the date December 1648) which affords a good instance of the popular acceptance of the Myth:

'When we came to Calais, we met the Earl of Strafford and Sir Kenelm Digby, with some of our countrymen. We were all feasted at the Governor's of the Castle, and much excellent discourse passed; but, as was reason, most share was Sir Kenelm Digby's, who had enlarged somewhat more in extraordinary stories than might be averred, and all of them passed with great applause and wonder of the French then at table. But the concluding was that Barnacles, a bird in Jersey, was first a shell-fish to appearance, and from that, sticking

upon old wood, became in time a bird. After some consideration, they all unanimously burst out into laughter, believing it altogether false; and, to say the truth, it was the only true thing he had discoursed with them' (196).

But in 1651 Harvey refers to the Myth (197). It is not to be supposed that the discoverer of the circulation of the blood would accept the story. Accordingly in his last published work he tells us, 'In the Eastern *Islands* of *Scotland* there is such a mighty affluence of all-most all sorts of *Sea-fowle*, that if I should relate all that I have heard, though from persons of great integrity, I fear I should be suspected more Fabulous than those several Authors, who discourse of the *Scotish* or *Soland Geese*, which they story to be born from the fruit of certain Trees falling into the Sea (which fruit or *Geese*, they themselves never saw). However, I shall venture to relate what my owne Eyes have seen'—and there follows a description of the congregation of birds at the Bass Rock.

In the same year one Cattier (198) wrote an independent 'Discours de la Macreuse' in which he says (p. 4): 'La Macreuse a esté dès longtemps l'entretien de plusieurs personnes d'esprit qui en ont parlé diversement, les uns disans que la Macreuse est un oiseau, et les autres soutenant qu'elle est de la nature des poissons, puis qu'elle naist et habite parmy les eaux . . . (p. 9). On dit qu'il s'engendre de pourriture dans le fonds des vaisseaux, ce qui n'est pas impossible, puisque plusieurs poissons et volatiles se peuvent engendrer de la sorte. Il y a plusieurs poissons qui sont engendrez sans copulation dans la bourbe, dans le sable, et dans l'écume de la mer.' He instances the eel—a parallel which frequently recurs among the old writers—'dont on ne trouve ny semence ny œufs', and he tells us also that 'les foucques (Coots) qui se prennent sur l'Estang vers Montpellier sont des ani-

maux que je trouve fort semblables à celuy dont nous parlons, ayans des plumes, le bec, et les pattes semblables à celles d'un canard : cependant il ne se trouve personne dans le Languedoc qui les mange en guise de poisson'—and then follows a lengthy argument why the Macreuse must not be rated as fish.

Old Izaak Walton in 1653 accepted the story as an argument of the verity of similar recorded marvels. He says (199): 'That eels may be bred as some kinds of bees and wasps are, either out of dew or out of the corruption of the earth, seems to be made probable by the barnacles and young goslings bred by the sun's heat and the rotten planks of an old ship, and hatched out of trees ; both which are related for truths by du Bartas and Lobel, and also by our learned Camden and laborious Gerard in his "Herball".'



FIG. 30. Olaus Worm, 1655.

In 1655 Olaus Worm (200) describes the shells attached to seaweeds, which 'when they are opened reveal the rudiments of birds with their feathers sufficiently distinct. They are similar to those which de Lobel saw attached to the keels of ships in the Thames.'

His woodcut (Fig. 30) is one of the earliest approaching a correct illustration. He tells us that in Lent large numbers of the birds 'are taken from Normandy to Paris and are sold as fish', and that the Doctors of the Sorbonne had decreed that these birds were indeed fish, and not birds (201). He quotes from a work which he describes as 'Epitomen Chronicorum Scottorum' edited in English at Edinburgh, which gives a fascinating account of the behaviour of the Barnacle-born geese, which I have been at some pains to run to earth. The author, who modestly writes over his initials 'I. M.' alone, was one Monipenny, who, some time previous to 1655, the date of Worm's work, wrote of the 'Wonders of Scotland' (202) and had told this quaint story, which is repeated by 'Wormius', but I have only been able to find an edition dated 1662. It forms a fitting finish to his terminal section, entitled 'A Memorial of the rare and wonderful things of Scotland', and is worthy of record. He says: 'In the North Seas of Scotland are great Clogs of Timber found, in the which are marveilously ingendered a sort of Geese called Clayk Geese, and do hang by the beak till they be of perfection. At Dumbarton, directly under the Castle, at the mouth of the river of Clyde, as it enters the sea, there are a number of Clayk Geese, black of colour, which in the night time do gather great quantities of the crops of the grasse growing upon the land, and carry the same to the sea; then assembling in a round, and with a curious curiosity, do offer every one his portion to the sea floud, and there attend upon the flowing of the tide, till the grasse be purified from the fresh taste and turned to the salt, and lest any part thereof should escape, they hold it with their nebs: thereafter orderly every Fowle eats his portion: and this custome they observe perpetually. They are fat and delicious to be eaten. FINIS' (!)

In the same year Andrew Marvell's poem 'The

First Anniversary' (203) contains a reference to the Myth in speaking of the Navy, which runs:

'Is this', saith one, 'the nation that we read,
Spent with both wars, under a captain dead?
Yet rig a navy while we dress us late,
And, ere we dine, rase and rebuild a State?
What oaken forests, and what golden mines!
What mints of men, what union of designs!
Unless their ships do as their fowle proceed
Of shedding leaves that in their ocean breed.'

In 1656 both the birds and the shells appear in the Catalogue of John Tradescant's Museum (204) as 'Barnacles—four sorts' in the section 'Whole Birds' (p. 5), and also 'Solon Goose' as a different bird, and among the '*Aquatalia exsanguinea Testacea*' (p. 10) appear '*Concha anatifera*, Barnacles'.

In 1658 Senguerdus utters a definite protest against the Myth (205). He calls attention to the multifold and varying testimonies of the earlier writers on the subject, and after relating the Myth he says: 'I will not delay a refutation of this opinion; geese are not apples or pears which grow from trees devoid of senses . . . There are those who would have it that the birds are not only produced from the woody substance, but also from seaweed clinging to the wood by means of an oily and pitchy substance, and that this is first transformed into shells which in time develop wings and become birds—which theory is favoured by various learned men. This will not do, for it arises not from experience but from reports and conjectures. Reason repels rather than accepts it. There is so much difference between volatile and aqueous creatures that it is not admissible that the one should generate from the other. Besides, birds are warm-blooded and are nourished with blood.' He gives the experience of the Hollanders (in the original Dutch) with Sennert's ingenious explanation (see note 190), and sums up

the whole theory of the Myth as ridiculous and unnecessary, adding very pertinently that it is to be remarked that 'our sailors, who circumnavigate the whole of the Hebrides and Orkneys, have never seen these geese falling from trees—if they grow upon them'.

The attitude of that conscientious and diligent historian Sir James Ware in 1658 was strictly non-committal; what he says in his magnum opus (206) is as follows: 'Of the Generation of Bernacles out of Wood corrupted in Salt-water, see Giraldus Cambrensis'. He describes the bird, and proceeds: 'The same almost says Wm. Turner. I have seen a piece of rotten Wood, from whence many little bodies inclos'd in shells, broke out, of which as the common opinion is of those who inhabit near those shores frequented by Bernacles, both in Ireland and Scotland are produced. Moreover, (says Turner) this generation of Bernacles will not seem so strange to those who have read what Aristotle writes of the Ephemeros bird, generated of certain leaves in the River Hypanis.' He quotes Gerard, and the Hollanders—under the reference 'Pontanus, History of the affairs of Amsterdam' (see note 151)—and Fabius Colonna, and he cautiously concludes: 'However in a matter which may deserve further search, I determin (*sic*) nothing.'

A careful and well-reasoned refutation of the Myth is afforded by Deusingius in 1659 (207), who, in a voluminous section entitled 'De Anseribus Scoticis', marshals the whole evidence both pro and contra, and ends with Harvey's description of the birds of the Bass Rock, where he opines that the Barnacle goose may lay its eggs. He is followed with no uncertain voice by Bartholinus in 1661 (208), who, in his section 'Conchae anatiferae majores', quotes the recorders of the Myth, and tells us that he has received a new species of Barnacle from D. Otthoni Sperlingo, from

pag 275.

Fig. I.



Fig. 2.

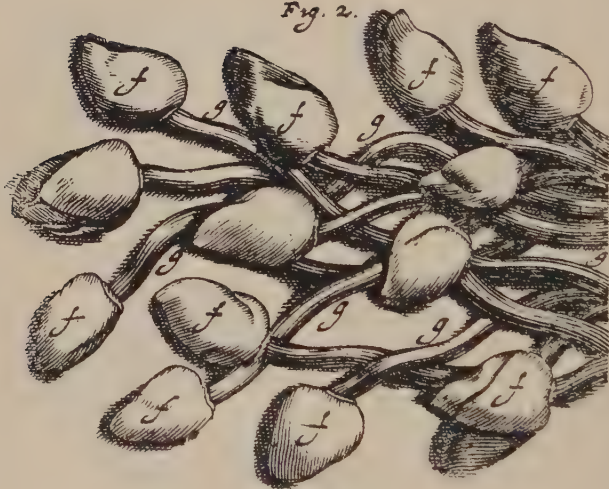


FIG. 31. T. Bartholinus, 1661.

the Norwegian sea. He says: 'Inside it are to be found "rudiments" which are believed to be miniature feathers of birds', but he opines that they are insects or worms, and cannot be confused with feathers of birds when examined by the eye or the microscope. This is the first recorded use of the microscope in the controversy, and it is accompanied by a plate (facing p. 271) which is, I think, the first instance of a properly figured dissection of the animal, being three-quarters of a century earlier than the plate of Turberville Needham to which I have referred in Part I (see note 23) (209). The 'Description' of this plate, which I reproduce in Fig. 31, is as follows:

Figura I. Conchas anatiferas majores representat. *a.* Centrum. *bbb.* Ipsae conchae tres clausae. *ccc.* Vas umbilicale. *d.* Concha aperta. *e.* Pennarum una, ea magnitudine et forma, qua per microscopium observavimus.

Figura II. Vulgares conchas minores indicat. *ffff*, etc. Ipsae conchae minores. *ggg*, etc. Vasa earundem umbilicalia. *h.* Concha pregnans.

Deusingius was hotly—one might say acrimoniously—opposed by Rall in 1669 (210); it was a very pretty quarrel, recalling that of Cardanus and Scaliger. Deusingius replied in kind, and his reply, says Guettard (see note 279), 'fut vive, piquante, et victorieuse'—in it he refers to Rall always as 'Anser' or 'Bernard' and it is not surprising that Rall got the worst of it, seeing that the only 'proof' which he could bring forward of the Myth was that he knew people who had actually eaten the birds, to which Deusingius pertinently replied that that appears to him to afford no evidence of their origin.

Childrey, who like all British authors is frequently quoted in the literature (as being 'to the manner born', so to speak), tells in 1660 (211) of the 'Bernacles or Soland Geese' that 'they have so infinite a number of them that they seem to darken the Sun's sight'. (He

is speaking of the Bass Rock.) 'There hath been great dispute among the learned about the generation of these geese, some holding that they were bred of the leaves of the Barnacle Tree falling into the Waters, others that they were bred of moist, rotten Wood lying in the Waters, but it is since found that they come of an egg and are hatched as other Geese are.'

In the face of all this, it is disconcerting for a Fellow of the Royal Society to be compelled to record that shortly after the foundation of that august body '*nullius addictus iurare in verba magistri*' (our motto is '*Nul-lius in verba*') its first President, Sir Robert Moray, 'lately one of his Majesty's Council for the Kingdom of Scotland' and an intimate friend of Charles II, read before the Society 'A Relation concerning Barnacles' in which he accurately describes the Barnacle shells, and states that they had within them 'little birds, perfectly shaped'. This paper, read in 1661, was published many years later in the '*Philosophical Transactions*' (January and February, vol. xii, 1677-8, no. 137). He writes, after describing 'lying on the shore a sort of a large Firr-tree . . . which had lain so long out of the water that it was very dry . . . Only on the parts that lay next the ground, there still hung multitudes of little Shells ; having within them little Birds, perfectly shaped, supposed to be Barnacles . . . The Shells hang at the Tree by a neck longer than the shell . . . This Bird in every Shell that I opened, as well the least as the biggest, I found so curiously and compleatly formed, that there appeared nothing wanting as to internal parts for making up a perfect Sea-fowl: every little part appearing so distinctly that the whole looked like a large Bird seen through a concave or diminishing Glass, colour and feature being everywhere so clear and neat. The little Bill, like that of a Goose; the Eyes marked; the Head, Neck, Breast, Wings, Tail, and Feet formed, the Feathers everywhere perfectly shaped

and blackish coloured; and the Feet like those of other Water-foul, to my best remembrance. All being dead and dry, I did not look after the Inward parts of them. . . . Nor did I ever see any of the little Birds alive nor meet with anybody that did. Only some credible persons have assured me that they have seen some as big as their fist' (212). Sir Ray Lankester (*op. cit.*, in note 41, p. 128) comments upon this paper that Sir Robert Moray confesses 'that he is writing not with his specimens before him but from remembrance of them'. Moreover, he tells us with admirable candour that the specimens were dead and dry when he examined them. One could not desire a better justification for the motto adopted by the Royal Society, 'Nullius in verba', and for the procedure upon which, in its early days, the Society insisted, namely that at its meetings the members should 'bring in' a specimen or experiment, and not occupy time by mere relations and 'reports of marvels'.

It may be added that Sir Robert Moray was subsequently in 1685 contradicted by Dr. Tancred Robinson (213), and in the same year John Ray, editing Willughby's Ornithology (214), contradicted him also in terms which suggest that he had in mind the work of Gaspar Schott above referred to (215). Ray cites the early recorders of the Myth and refers to the figures given by de Lobel, Gerard, and others, and adds: 'I am quite persuaded that it is all false and fabulous . . . in all the science of birds (excepting as regards the Phoenix concerning whose origin what they record is fabulous) they equivocate (are ambiguous) and no example of spontaneous generation is forthcoming.' He admits that among smaller and less highly organized creatures, such as many insects, and among quadrupeds, the frogs, generation either spontaneous or from alien sperms and primary matter is commonly believed, but, he goes on: 'no philosopher has admitted

that higher animals perfect in themselves, as are Geese among the birds, can be evolved in this manner. . . . The Barnacles are a species of marine *Balanus*, a genus by themselves, and not transmutable into other genera, whilst the Geese lay and hatch eggs (as the Hollanders discovered) like other birds.'

Andrea Chiocco in 1662 (216), in his 'catalogue raisonné' of the Museum of Francesco Calceolario (a work often vaguely referred to merely as 'Calceolarius'), registers again the statement that of the shells (of which he gives a figure which I reproduce (Fig. 32), and which distinctly indicates the birds) which fall in the water some become geese, and others ducks, the others, which fall on land, dry up and perish. They are derived both from ship-timber and from trees, and he cites many early authorities, including the refutation of Fabius Colonna. But, on consideration, he elects to discard this refutation for the reason that in course of conversation with one Pancrace Mazzanghius Burghaeus (details of whose eminence in science and society occupy several lines) he was told of a branch of a tree preserved in the Natural History Museum at Pisa covered with Barnacles, again likened to almonds (cf. Imperato, note 143)—*nuci amygdalinae compressae pares*. This appears to have convinced him, and he goes on to quote Scaliger at length (whom he describes as always prolific in presenting novelties), and then he goes off into a most curious moral lecture, comparing mankind to Barnacles, a lecture the particulars of which render it advisable to leave it as in the original, in the note. Shortly, man is a Barnacle, a shining shell from the Tree of Life falling into the sea of human tribulations, and subject to stated frailties, subsequently by the grace of God endowed with wings and becoming a bird much favoured by God the One and Three, he goes to heaven to be consoled with the food which the Souls of the Blessed enjoy there.

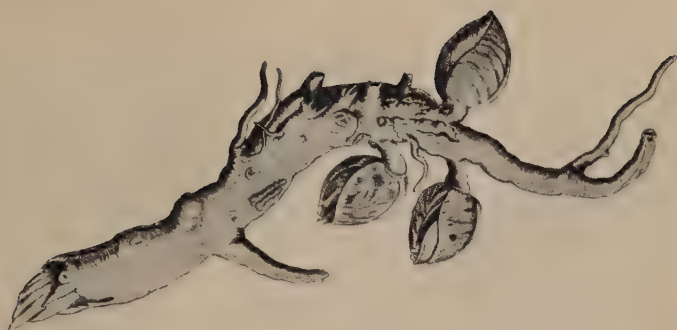


FIG. 32. Andrea Chiocco, 1662

Arbor Anatifera
Entenbaum.



FIG. 33. J. Jonstonus, 1662

Jonston, the author of *Thaumatographia* (see note 181), in a later work published in 1662 (217) discusses the triple nature of the Goose-tree according to various authors. He remarks that one school of thought derives living and flying birds from the worms bred in rotten wood; the second announces ducks produced naturally from fruits like pine-cones, enfolded in leaves, which are lawful food in Lent; the third—of the school of Duret—avers that if the leaves fall in the water they become fish, and if on land they become birds. He quotes the ‘flotation theory’ of Kircher, which, he says, is borne out in ‘China sub Vuting, at the lake Hanai’ where the leaves of a certain tree turn into black birds (218). He appends a figure which is elaborated from that of Pena and de Lobel with a pretty little landscape as a background (Fig. 33).

In 1662 a Jesuit priest and most voluminous writer, one Gaspar Schott (219), laboriously collected everything that was to be found concerning the Myth ‘in copiosa Bibliotheca nostra’ at his College in Würzburg. He transcribes, comments upon, or refers to some thirty authorities—and I have been at some pains to follow in his footsteps. He says in his introductory ‘*Dissertatio Historico-Physica*’ that he will give first everybody else’s views, and then declare his own, and adds that ‘out of these the prudent Reader will decide what is most worthy of belief’. When he comes to the end of his ‘authorities’ he gives his opinion at length. He points out the manifold discrepancies that must cast doubt upon the whole question. These are, in chief, fourfold. First: that some call them geese, and others, ducks. Second: the confusion in name, the birds being called indiscriminately *Brantas*, *Berniclas*, *Bernichias*, *Bernaclas*, *Barliatas*, *Bernestas*, *Barbatas*, *Clakis*, *Clacuse*, *Claiks*, *Claikgees*, *Baum-gens*, *Rot-gens*, and other names (see note 38). Third: the localities, which are given as Scotland, Ireland, Hebrides,

Orkneys, the whole ocean round Scotland, and the river Thames. Fourth: their origin, which is given variously as by natural copulation, or spontaneous, and that the latter is stated to be from trees, from rotten wood, or from the sea; beginning as shells, fungi, seaweeds, fruits, or leaves of trees, and in other forms. He decides to call them inclusively 'Britannicas' and says that so many eminent authors both recent and ancient have vouched for them 'of whom many had seen them with their own eyes' that it will not do to disbelieve everybody. He decides (*Aio*) that they are geese, and that the diversity in their names arises from the ignorance and carelessness of copyists and printers, and gives his reasons and authorities. Further, that they do not arise spontaneously from trees and so on, as above catalogued, 'neither experience nor authority justify the supposition'. That undoubtedly worms do breed in rotten wood in the sea—and then he 'hedges', conceding that bird-like worms may be found in the aforesaid shells, which develop and fly away as many eye-witnesses have stated, but the birds of which he is writing do not do so; for no one has ever seen them do so, and nothing so perfect or large could be born in this manner. It is simply the repetition of a vulgar error (220); Lee (*op. cit.*, in note 84, p. 119) suggests that his 'concession' probably refers to the development of moths from caterpillars. Schott further decides that his 'Aves Britannicas' are born of incubated eggs like other geese, relying upon the opinion of Albertus Magnus, Gerhard de Vera, and the Hollanders (see note 151)—whose voyage he dates as in 1569 (221)—and that the Myth has arisen from the fact that their breeding-places are inaccessible. And he ends by patting himself on the back for having gone so deeply into the matter and so deserved well of the whole Republic of Letters (222)—as do also those who have dealt similarly with

the Phoenix, the Pelican, the Unicorn, the Bezoar Stone, Behemoth, the Basilisk, and the Dragon.

Lucas de Linda in his 'Cosmography' in 1665 is content with a short note, stating that in Ireland birds are generated from wood or trees as in Scotland, and are called Bernickles (223).

In 1665 Phil. Jac. Sachse à Lowenheim (referred to by Graindorge (*op. cit.*, in note 232, p. 52) as 'de Sactis') in his 'Gammarologia' (224), a remarkable early work on Crustacea, speaks of the 'Barnacle birds or Scotch geese' being eaten in Lent in Paris by the authority of the Theological Doctors of the Sorbonne, taking his account from Olaus Worm (see note 201). Later on (*op. cit.*, p. 103), after mentioning the parasitic crabs found in shells, he asks what is to be thought of the rudimentary feathers so much discussed by eminent minds? He cites various versions of the Myth from Boethius to Nierembergius and its refutation by equally authoritative writers to whom we have alluded in this volume, and, after relating the story of the Hollanders, he concludes that the creatures are produced by floating eggs (spat) which are picked up by the branches of trees immersed in water by the action of the wind 'just as Joh. Albert Mandersloo found oysters growing upon trees in Madagascar,' and he elaborates this phenomenon as accounting for the origin of the Barnacle Myth, quoting, however, Harvey in opposition.

In 1666 Honoratus Fabri (225) pronounced definitely in favour of the natural and normal procreation of the Barnacle goose, rather than countenance the arboreal origin of the birds, but he seems to admit that it is open to question whether they proceed from eggs, or from putrefied matter, or from wood, or from the sea, 'or from some primordial principle of life resident in seaweed, or even from the excreta of marine birds of which there is an infinite abundance in those Scottish Islands'.

In 1670 the Myth is carefully analysed by Kipping (226), who describes plants and trees from which live animals are produced, 'as for instance in the district of Quinquelden (see pp. 24 and 41 and notes 77 and 78), the Orkneys, and in the Thames in England. The trees growing on the shore, when the branches reach the water, and leaves fall from them, small round white shells cling to them, which arriving at maturity generate little birds and these subsequently entering the water acquire vigour.' And then (as another instance) he cites the birds born of flowers in the province of Suchuen in China, described by Martinus and Kircher (see note 218). And he observes: 'Truly he who believes easily, is easily deceived. It is nothing new for many fables to be mixed in with doubtful relations.' He quotes Boethius, and the refutations of Aldrovandus and Harvey, and explains the Myth by the vast masses of birds that arrive from unknown breeding-places. He states their generation to be normal, following Deusingius and Franzius, and quotes the Hollanders and also Clusius, who, he tells us, had taken the nests and eggs of these birds on the Island of the Cross (?) (*Insula Crucis*) in the Cronian Sea (?) (*in Mari Cronio*). He at any rate does his best to account for the appearance of shells on the branches of riparian trees, and it is probable that he was acquainted with the account of J. H. Mandersloo quoted in 1665 by Phil. Jac. Sachse (see p. 75 and note 224).

Among the many utterly unjustifiable references peppered into their works by the Thesis-writers is that of Funccius (see note 241), who credits Godefridus Voigt in 1671 with one to the Myth (227). All that Voigt wrote which could have caught the writer's attention was a turgid argument as to whether flying-fish were birds, and vice versa.

But it is hardly surprising that in the year following the publication of Sir Robert Moray's pronouncement

before the Royal Society (1678) Samuel Butler in the Third Part of his 'Hudibras' (l. 653) uses the Myth as a parallel:

And from the most refin'd of Saints
As naturally grow Miscreants,
As Barnacles turn'd *Soland* Geese
In th' Islands of the Orcades.

And in the same year the omnivorous and apparently omniscient Athanasius Kircher deals, along new lines, with the refutation of the Hollanders of Nova Zembla (228). His explanation of the matter is that, the geese having laid their eggs upon the ice in lat. 80° N., when by the melting of the ice the eggs are broken, their fertile contents fall into the sea, are washed across to the Orkneys and Hebrides, and there become attached to the keels of ships and in process of time this 'seminal matter' (of which a very minute portion is sufficient) becomes animate in the form of geese or ducks. Dr. Tancred Robinson in his refutation of Sir Robert Moray (see note 213) in 1685 somewhat misrepresents Kircher, saying that he had suggested that the eggs themselves floated, undamaged, across the North Sea, and so stuck to and hatched upon planks, ships' bottoms, trees, or any rotten wood.

In the 1678 edition of Ducange's Glossarium, under 'Barnaces' we find them described as 'birds similar to woodland geese, produced as it were contrary to nature from pinewood, with which religious people are fed in seasons of fasting, because they are not born of flesh or by copulation' (229). He refers to Giraldus Cambrensis, and adds the (to me) mysterious reference 'Brompton, p. 1072'. Under 'Barneta' he gives it as a synonym of the Bernaca of Gervase of Tilbury, and under 'Bernacae' he says that they are similar to the woodland birds, but smaller and born of pinewood fallen into the water. He refers to the Bernaculae of

Stanihurst 'of to-day', who writes 'ancis' by mistake for 'aucis' (230), and says they are called 'Bernecelae' by the Emperor Frederick II in his 'De arte venandi', bk. i, cap. 6, and 'Berniclae' and 'Bernichae' in caps. 19 and 21 (231). The same definitions and notes are given in the editions of 1733 and 1772; in the 1766 edition he gives also 'Rotgansen, Hollandis' and refers to 'Barnaces' (*ante*) but this word does not occur—he gives however 'Barneta' with synonyms 'Bernaca', 'Barnacle', and 'Barnaque'. The great edition of Niort, 1883, is identical with that of 1678.

But in 1680 there appeared a work which may be regarded as the answer to Michael Maierus's 'De Volucris Arborea' (see note 180) compiled with infinite care and labour by a certain M. de Graindorge, then dead, but 'brought to light' by M. Thomas Malouin (232). It is sufficiently important to merit analysis, and the headings of the chapters or 'Articles' indicate its scope; they are as follows:

Art. i. Les philosophes doivent établir leurs raisonnemens sur des faits certains.

ii. Description du Coquillage appelé *Concha Anatifera*.—In this chapter I think the word *sapinette* for the Barnacle (from *sapin* = pine) makes its first appearance in the literature. He describes *Lepas anatifera* and tells us that his specimens were obtained from a ship newly returned from an eight months' cruise to the cod fisheries off Newfoundland. He quotes Pena and Lobel, Mayerne (*sic* ? Maierus; he is painfully careless in his spelling of names), Bartholinus, (with his figure (see fig. 31)), and Wormius.

iii. Le Coquillage contient un petit Poisson de son essence particulière.

iv. Les Divers sentimens qu'on a eu sur l'Origine des Macreuses ou Oyes d'Ecosse.—Quotes Aldrovandus, Giraldu, and Vincent of Beauvais.

v. La première opinion tient qu'elles naissent contre des fruits d'arbres.—Quotes Pena and Lobel, Aldrovandus, Münster, Odericus, Chassaveur (*sic* = Chassaneux, note 87), Tor-

quemada, Fulgosius (Fregoso), Olaus Magnus, Jacques de Vitry, Leslie, Majolus, Scaliger, del Rio, du Bartas and his Italian translator 'Grisono' (*sic*=Guisone), Belon, and Turner.

- vi. La seconde tient, qu'elles naissent contre le débris des Navires, et qu'elles y sont attachées par le bec.—Quotes V. of Beauvais, A. du Chesne, Camden, Wormius, Danisi (? see p. 80), Turner, Alexander ab Alexandro, Boethius, Rondelet, and della Porta.
- vii. La troisième prétend que ces Oyseaux prennent leur naissance dans nôtre Coquillage.—Quotes Giraldus, Boethius, Cardanus, and Mayerus.
- viii. La quatrième, qui est la seule véritable, soutient que les Macreuses tirent leur Origine des œufs, comme tous les autres Oyseaux.
- ix. Description de divers oyseaux qui ont passé pour les Oyes ou Canards d'Ecosse, etc.
- x. La Coûtume autorise l'usage de manger des Macreuses aux jours maigres.—Quotes V. of Beauvais, Fulgosius, D'Anisy (*sic*), Wormius and his account of the decision of the Theologists of the Sorbonne, a long and minute discussion of this feature of the Myth. He wisely observes: 'Il est vray que cette coûtume n'est fondée que sur une erreur populaire, mais aussi en cette rencontre que l'erreur tient lieu de loy. *Error facit jus, communis opinio facit jus*, comme parlent les Auteurs du Droit Canon et Civil.'

In his anatomical description (Art. ii) he calls attention to the features which seem to suggest birds and observes that ignorant people might be deceived by these appearances, but he proceeds: 'mais de voir des gens habiles, que leur capacité devrait exempter de surprise, et dont la probité ne permet pas de croire qu'ils veulent surprendre les autres, et de les voir en si grand nombre, qui ont les yeux si fascinés et l'esprit si enchanté, que d'asseurer pour vray et pour constant qu'ils ont trouvé des Oyseaux tous formés dans cette sorte de coquillage, qu'ils en ont vu toutes les parties bien distinctement, c'est qu'on ne pourrait jamais se persuader, si ces Auteurs n'en donnaient eux-mêmes

leur propre témoignage dans les Ecrits qu'ils ont mis au jour.' Later on (p. 45) he apologizes for differing — 'à contredire des Personnes Graves qui rendent témoignage de ce qu'ils ont vu et touché . . . il n'y faut pas chercher au dedans d'autre animal que notre Poisson, qui n'a rien de l'Oyseau, que ce qu'une imagination préoccupée luy peut fournir.'

This little book contains some tantalizing references which it is very difficult to verify, owing to the contractions and inaccuracies which characterize them. Thus he tells us 'Il y a même quelque Auteur qui prétend que ces Oyseaux n'engendrent aucune superfluité, et ne jettent aucun excrément, ayant cela de commun avec les arbres d'où ils tirent leur Origine. *Non habere superflui humoris egestionem, sicut nec arbores*' (233).

Again (p. 84; in the 1780 edition p. 43), he refers to one 'Pierre Danisi' who, he says 'in the description of Europe, dealing with Ireland, says that the Bernaces or Bernacles are marsh-fowl which are born like gum of pine-trees, brought by the sea, etc. It is not by copulation that the eggs are produced, and no bird sits upon them, so that in some parts of Ireland, Monks and other Ecclesiastics are in the habit of living upon these birds, as not being born of flesh.' Later (p. 87) he calls him 'd'Anisy', but I have not been able to identify the writer in either form.

He concludes with the significant observation arising out of the arguments of Mayer (p. 54), 'Il n'est pas question de scavoir ce que Dieu peut faire . . . Si Dieu avait commandé aux Huitres de produire des Aigles, ils obéiroient à l'ordre du Seigneur: mais il n'est pas besoin icy de s'écarter des voyes ordinaires.' This reminds one of the story told of Laplace's reply to Napoleon, who observed that in setting forth the Nebular Theory in his 'Système du Monde' (1796) he had never mentioned the directive powers of God: 'Sire, je n'avais pas besoin de cette hypothèse.'

Becmann in his descriptive geography published in 1680 (234) described the natural wealth of Britain in considerable detail, telling us of fisheries where 60,000 salmon, many weighing forty pounds each, were habitually caught. He describes our terrestrial and marine avifauna, 'singular among which is that genus of ducks, or geese, the Bernacles commonly believed to be evolved out of shells, trees, and so on. The history is sufficiently well known, but there are points to be noted in it. There is no doubt that they are found not only in Scotland, but also on the English shores of the Irish Sea, in the port of Milford Haven and elsewhere, where masses of them adhere to ships and impede their progress not a little. The doubts about them however are cleared up to-day,' and he cites the account of the Hollanders, which he reconciles with the flotation theory of Kircher, stating that the 'spermatic humour' being thus dispersed and caught in a convenient matrix is hatched by the action of the internal and external air, and, from the semen of perfect birds, a perfect bird is formed, but whether or no the 'seed' of a perfect animal can be kept alive and uninjured and hatched away from the genital apparatus of that animal and after the considerable lapse of time connoted by the circumstances, is deservedly open to doubt, and has not up to now been proved by experience.'

The learned Jesuit Father Philip Buonanni, writing in 1681 (235), recorded and accepted the Myth on the ground that so many reputable authorities had done so, but, to make sure, he appears to have written for evidence and confirmation to a friend in England—'un Cavaliere'—who replied—'da una Villa vicino a Londra'—that certain winged insects were developed from worms that lived in rotten wood, but that he had nothing to say upon the question of the Barnacles, adding that Buonanni's letter had 'excited laughter in those to whom he had read it'. The letter, which he

sets out at length, is worth reproducing in its entirety, as the evidence at first hand of a person, evidently of standing and intelligence, and a native of the home of the Myth; it reads: 'Ricevo la cortesissima de V.S. coll ordine di trovarle, e inviarle tre Conchigli prodigiosi, da cui, nel Mar di Scotia, e nel Canale d'Inghil-

2



FIG. 34. P. Buonanni, 1681.

terra, nascono Uccelli che in Parigi si mangiono in vece de Pesce. In Inghilterra io le confesso il vero, non hogia mai udita una tal cosa. Ho ben saputa una simile, e doppo esatta inquisitione trovo che non sono Conchigli, ma legni i quali nell' infracidarsi nel Mare producono certi vermi, che stanno tenacemente attaccati al legno stesso, da quali cresciuti ad una tale grandezza, sortisce un come parpaglione (*butterfly*) che collo stare sempre su l'aqua cresce a poco a poco in uccello. Il ritrovare un tal legno non e cosi facile, non trovandosi che per accidente, gli uccelli sono rarissimi, ne si prendono vivi; onde non so come si possano mangiare a Parigi, se non fosse salati. Hanno la loro stagione, in cui cacciano, ma non d'inverno. Questo e in ordine

all'informazione presa, secondo la quale e falsissima la credenza, che sieno Conche, e si assicuri V.S. che quando ho chiesto di Conchigli si prodigiosi, tutti qui si sono risi d'una tale credenza.' The Reverend Father Buonanni was really anxious to believe the Myth, and after citing Fabri, who had recorded butterflies born of Scabious leaves and beetles from manure, he opines that the wood has merely received seminal germs from a goose. His figure (Fig. 34) is a modified view of the accepted Myth shell. He points out that vast flocks of geese lay, in the frozen seas, enough eggs to nourish all Europe, and concludes that when the ice melts in Spring, the eggs break and get mixed into the sea water, and that thus they reach the Orkneys, the Hebrides, Iceland, and Norway, and there, finding lodgement in suitable receptacles, they develop into perfect birds. He regards as testimony of the truth of this the fact that Jacobus Barreliero 'a diligent student of natural things' (edited by Jussieu, *q.v.* note 254) has had some of these birds.

In 1684 we find a record, cited in the series of articles on 'Early Science in Oxford' recently appearing in 'Nature' (7th November 1925); that on the 11th November (1684) 'Mr. Charles Leigh communicated severall curiosities observ'd by him in Lancashire; particularly of Barnacles, which he takes to be a shell-fish, not a bird' (236)—and in the same year Sir Robert Sibbald (237) referring to the observations of Valentine quoted from Wormius (see pp. 65 and 92) as to the edict of the Doctors of the Sorbonne that these geese should be classed as fishes, tells us that Normandy was reported to be the locality from which large numbers of the birds were sent to Paris, but that the greater part of them came from Holland. In a subsequent passage (*op. cit.*, p. 28), in describing the Barnacle 'Concha anatifera', he makes it plain that he was under no illusions on the subject. Prof. Max Müller (238) tells us that in

Brittany 'Barnacle-geese were still allowed to be eaten on Fridays in 1864, and that the Roman Catholic Bishop of Ferns might give permission to people outside his own diocese to eat these birds at his table'.

Mr. Martin Duncan, the learned librarian of the Zoological Society, tells me that shortly before the Great War, when lecturing in the North of Ireland on marine animals, a parish priest who had attended his lecture—in which he had not mentioned the Myth—wrote asking him whether he had told the whole story of the Barnacle 'because his people were in the habit of eating the Barnacle-goose during Lent, under the impression that it was more fish than fowl', and stating that a comparatively recent pope had granted a dispensation to the people of Derry permitting them to continue to eat the Barnacle-goose during Lent as an ancient and established custom.

Sir Edward Sullivan tells me, on the authority of the late Sir John Neligan (sometime Recorder of Cork and a notable ornithologist), that the same lenten licence obtained all along the Kerry Coast, 'not because they had any belief in the mythical story of its origin, but because they knew that it lived more on sea than on land and so acquired a fishy character' (239). Thus does history repeat itself even in Irish ecclesiastical lore.

I personally remember a remarkable fish-dinner, served at a hotel in Ghent on Good Friday of 1901, which consisted of eleven courses of different fish, ending with one of a water-fowl of violently piscatorial flavour, which I took to be Teal, but it may have been—and I hope it was—Barnacle Goose.

Hartnac in 1684 (240) describes the phenomenon, citing many authors from Aeneas Sylvius down to Franzius, and disposes of it, saying: 'It is commonly believed, but who is simple enough to think, that birds are born of fruits or from water?'—and he cites (in the words of Franzius, *q.v.* note 164) the account of the

Hollanders, which recurs continually in this literature, the writers consistently ignoring the fact that Albertus Magnus had confuted the Myth by an identical observation made three hundred years earlier, and that Belon (see p. 30) had also recorded the observation in 1555.

It is significant of the interest aroused by the Myth that more than one thesis was presented by candidates for university degrees, having the Myth for their subject. The first known to me is that of 'Georgius Funccius' presented to the University of Königsberg in April 1689 (241). Like writers of modern theses there was a paramount desire on the part of the candidate to show that he had done an immense amount of searching and work among the earlier literature of his subject, and accordingly Funck's thesis begins with a vast catalogue of writers pro and contra, some of whom had very little claim to inclusion, but which testified to the writer's labour and erudition. He starts with Aristotle's animals derived from snow, ice, and fire (242) (a citation which frequently crops up in our authors), and he proceeds to refute the Myth. He says: 'We may conclude that worms are generated by rotten wood, not only in Scotland, but in many other regions, but we deny that these worms are the birds which the Scotch call 'Clakis' (243). Then he gives an equally long list of the contradictors *optimique inter Physicos modernos omnes*. We find the often reiterated arguments against metamorphoses, confusion of species, and spontaneous generation, and he calls attention to the fact that Senguerdus (see note 205) had opened one of the birds and found it full of eggs, and he ends with the whole passage from Harvey (see note 197).

The confusion existing in the literature as to whether the bird was a duck or a goose was commented upon in 1689 by Happel (244), who calls attention to the fact that 'some of the learned regard them as ducks, but

by the majority they were held to be geese', and, as we shall see, he had a great respect for majorities. After a careful description of the bird he gives a long list of authors who have supported the Myth, and then names five who had denied it. He says: 'So far as I am concerned, no one can bring me to the point of believing that all these above-cited writers have either lied or been mistaken', and he quotes the self-advertised eye-witnesses. On the whole, however, he supports the flotation theory of Kircher and his school. 'When all the necessary conditions are present, everything is properly disposed by Nature. I admit that in northern regions many thousands of these geese (*Roth-Gänse*) were found which behaved and bred normally, but this does not prove that they originated in Scotland. It is not to be believed that the five cited contradictors alone spoke the truth and that all the others—among them real lights of physical knowledge (*darunter rechte Lumina Physicorum*)—had grossly erred in a matter to which there existed the testimony of eye-witnesses'; and he concludes, 'now I let the Roth-Ganss fly, and will attend to something else'—which he proceeds to do.

The year 1697 supplies us with another university thesis—this time from Copenhagen, the work of one Ericus à Moinichen (245). Unlike Funccius (see note 241) he sets himself to support the Myth and, as he puts it in his title, 'to vindicate the duck-bearing shell'. He tells us that 'in the Northern Sea among other Zoophytes, duck-bearing shells also presented themselves to us, which I was able to see adhering to timbers tossed about by the sea'. He describes logs of wood, obviously bored by *Teredo*, and covered with Barnacles which were full of 'anserine embryos'. (In this controversy the words 'anas' and 'anser' are universally interchangeable.) In section ii. he discusses whence they come, and quotes Boethius, Maierus, Scaliger, and other protagonists. He names different

trees as hosts of the Barnacles, among them pine, but he adds, 'others prefer to this the tree of Cybele'—presumably the oak—(cf. Apollonius of Rhodes i, 1124), but he gives the first place to the pine as the resin (*viscosam suam pinguedinem*) is most favourable to the eggs and to the young birds. He discusses several authors in the turgid manner of thesis-writers, concluding *ex hoc uno B. L. nosce omnes*, which reads quaintly—and appositely—to modern eyes. And after wandering about among instances of strange generation and spontaneous births, he ends: 'armed with these ratiocinations arising from experiments, we adhere to our opinion tenaciously rather than captiously'. And this was within three years of the eighteenth century!

In 1699 Jacobaeus records the attitude of science towards the Myth (246). He observes that it is frequently met with in England, Scotland, and Norway, 'but whether real geese are produced is a matter for comment among the more sagacious', and he cites the old authors 'and many others who have expressed discrepant opinions and ambiguous conjectures' (247). He is of opinion that Barnacles are either insects or worms, and tells us that the illustrious mathematician Olaus Romer had found them on the northern shores of France (*in littore Galliae Caletano*) not adhering to any wood, and that the tube attached to them 'stretched and contracted exactly as a worm does by its annuli', an observation recorded by Sir R. Sibbald in the letter to Sir H. Sloane referred to in note 12. They were as thick as a finger, five or six inches long, and the head of the worm was to be seen inside the valves of the shell (248).

Pierre le Lorrain de Vallemont in 1708 (249) made an heroic attempt to reconcile the opposing views of earlier writers, quoting their various pronouncements, but his own view coincided, more or less, with those of Buonanni, Kircher, and the other writers of the

'flotationist' school. He says: 'My idea is that the geese (macreuse), which are nothing else but fish in the form of birds, construct their eggs or "germs" in the same way as the fish, and that thus their eggs or "germs" wander about at the will of the ocean until they attach themselves to plants, or other vegetation, or to wood, to seaweeds and marine plants, or to stones where the heat of the sun causes them to hatch. These "germs" are of a viscous substance such as we see in the spawn of frogs,' and besides this the seaweeds themselves are covered with a glutinous substance. He opines that the eggs have no shells but merely an envelope like those of fish. Of the earlier writers he observes that Count Mayer (Maierus) 'étable sur cela son Péripatétisme avec beaucoup de Gloire'—which is an admirable description of Mayer's book (see note 180); of Childrey (see note 211) he says: 'I fear that "M. Childrai" has missed the point. He has not reflected that cold-blooded animals like the fish and the Macreuse do not brood over their eggs. Why should they brood? It would be loss of time . . . for, after all, fish and Macreuses are animals as cold as marble . . . I think "M. Childrai" has mistaken ducks for Macreuses.' He had had a bunch of Barnacles sent him from Normandy, found on the prow of a vessel after a long voyage, and he gives a figure of it which Guettard (see note 279) describes as 'belle; c'est un assemblage de 8 Coquilles qui ressemblent assez à un bouquet de Tulipes'. He sums up the matter in six 'conclusions'. (1) That the birds do not grow from rotten wood, or from leaves or fruits; (2) that the bunches of Barnacles (*la Plante Anatifère*) are the nests where the germ material is caught and left to hatch out; (3) he quotes one M. du Tertre, who explains the appearance of oysters on the branches of trees washed by the sea, as being hatched from floating eggs (*spat*, wherein he is not far wrong); (4) that the Bar-

nacle shells grow to keep pace with the growth of the animal; (5) that the shells of the *Plante Anatifère* do the same; and in (6) he finds himself 'up against it'. He says: 'So far there is no difficulty . . . but what remains is more embarrassing, for one has to explain how it comes about that the Macreuses and the *Plante Anatifère* are made to suit one another.' And then follows his 'idea' above quoted, with an elaborate account of how the anchored germs develop. After citing Chiocco, Wormius, and Scaliger (whose 'sçavants' at the court of Francis I he attacks), he ends with a long citation from Maierus, picking out the parts which suit his theory, and adds with a naïveté which might well be imitated by later writers: 'Je ne me suis pas assujetti si fort à le traduire qu'il n'y ait un peu de commentaire dans ma Traduction. Mais j'estime que je n'ai rien gâté. Je le quitte ici parce qu'il n'est plus dans la bonne Physique' (!)

Hecquet in his treatise on lenten dispensations, in 1709 (250), classes the birds among the Amphibia 'those ambiguous creatures of doubtful origin and uncertain genus, which they claim as aquatic, and which are claimed by both earth and air, which error has caused to be classed as fish, and which sensuality has introduced, and which custom has exempted, and time has imperceptibly authorized. The Macreuse in especial . . . to the shame of religion they fearlessly eat flesh and blood at times when milk and butter can only be eaten under a special dispensation.' He classes them with beavers and turtles, and points out that they were 'unclean' to the Jews (251), and winds up by declaring that they are rank unhealthy food—'la macreuse étant par elle-même une nourriture des plus malfaisantes, elle doit par son assaisonnement devenir un des plus pernicioeux mets que la sensualité ait inventé' (*Hactenus Hecquet*); but Guettard (see note 279), commenting upon this passage in 1783, remarks

that 'in spite of all that Hecquet had said . . . in spite of the decision of the Lateran Council, the established custom exists, and will probably exist for ever, so difficult is it to abolish an established custom which is useful, and at the same time satisfies both taste and sensuality'.

The voluminous and learned Redi dealt with the Myth in 1712 (252). He says: 'I will not be troubled, and do not care to rank among those who give credence to that metamorphosis of the leaves of trees into swallows (*rondini*): I do not want to be told that it might by accident be possible in Nature, in view of the example of these geese. I have heard of these ducks called Bernacles, or Brants, which an infinite number of authors have agreed to believe are born of trees, or of their fruits, or from tree-trunks, or from shells in the islands adjacent to Scotland and Ireland. This fable was soundly confuted first by C. Clusius and many others, and subsequently by the learned Deusingius in his little treatise on the Scotch Goose. And Jacobus Ware in his book on the antiquities of Ireland (see note 206), after referring to the views of certain authors concerning the generation of these birds, prudently concludes that in this matter, which seems to merit the closest scrutiny, there is nothing definite' (see p. 67) (253). It will be remembered that Redi was the first biologist to prove by experiment that maggots and flies were generated in putrid flesh from eggs, and not by spontaneous generation, which theory thereby received its death-blow.

In the work of Jacobus Barreliero, edited by Ant. Jussieu in 1714 (254), the Myth is disposed of as a fisherman's tale. He observes that the bluntly pointed base often gapes open and rugged incurved legs emerge, shaped like a cock's tail which they think are the rudiments of duck-feathers, etc. This being observed by the credulous and simple fishermen gave

rise to the fable that ducks are produced by this genus of shells. This feature is well shown in his plate (Fig. 35), in which two bunches of *Lepas* are repre-

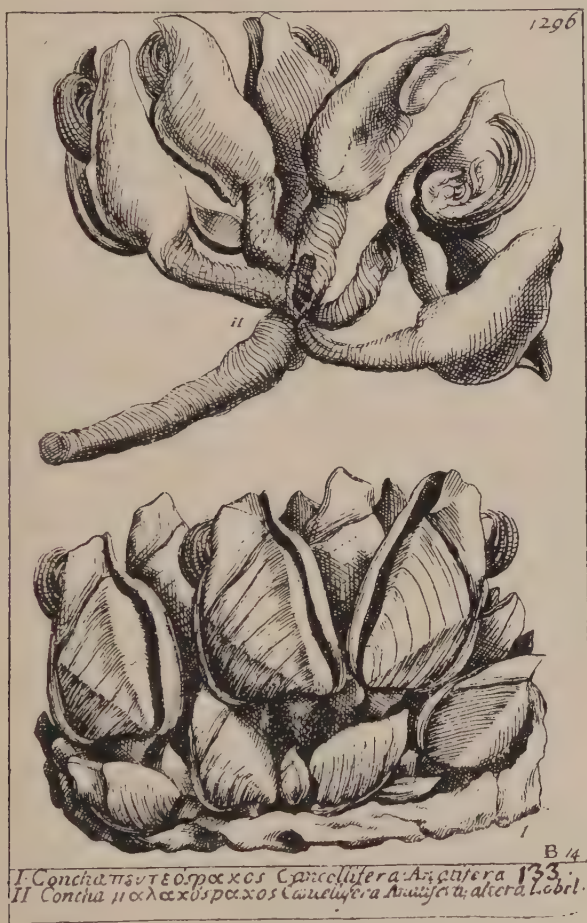


FIG. 35. Jacobus Barreliero, 1714.

sented, the longer-stalked specimens, branching fancifully from a peduncular stem, being described as *Concha πεντέ(στ)ρακος*, the shorter as *μαλακό(στ)ρακος*,

both with the generic name *Cancellifera*. The lower figure purports to be derived from the group of *Lepas* seen on the rock in de Lobel's 1591 figure (see Fig. 18).

The Pole Rzaczynski, whose name appears in the theses under the date 1715 (255), made no allusion to the Myth, but merely gives a synonymy of the bird and tells us that it builds its nest in hollow trees, or lays its eggs, cuckoo-like, in the nests of crows and of storks, which in itself seems to be a fairly mythical statement.

Still early in the century—in 1716—we find Michael Bernhard Valentine (256) giving an epitome of the opinions of previous writers on the subject, especially of the views expressed by Wormius (see note 200) in the passage referred to on p. 83, with the comments of Sir Robert Sibbald. Valentine has no illusions on the subject, in spite of the assertions of Sir R. Moray and Olaus Worm; he says (with Fabius Colonna): 'These shells are nothing but a species of marine *Balanus*, adhering to trees, ships, and other things', and points out that they exhibit 'incurved fibres' which have been mistaken for feathers, and goes on to refute Count Mayer and Wormius, referring to the decision of the Sorbonne. No one has ever given the date of this decision, so I have been unable to check the statement of Wormius.

The Norwegian historian Jōnas Ramus in 1735 gives us a developed version of the phenomenon as occurring in Norway (257). He says: 'It is said that a particular sort of goose is found in Nordland, which leave their seed on old trees, and stumps and blocks lying by the sea; and that from that seed there grow shells (*Skiael*) fast to the trees, from which shell, as from an egg, by the heat of the sun young geese are hatched, and afterwards grow up; which gave rise to the fable that geese grow upon trees.'

I have avoided, in dealing with the plethora of

references which I have encountered in this wild-goose chase, any reference to the colossal and almost innumerable dictionaries and encyclopaedias which have mentioned the Myth. Two of them, however, may be cited as specimens of the whole, that of Bruzen de la Martinière, and the dictionary which it is difficult to find in the catalogues as it is generally referred to as the 'Dictionnaire de Trévoux' (*vide post*, p. 94 and notes 259 and 261). I have selected these two as they gave Guettard (see note 279) occasion for caustic comment. In the former in 1726 (258) under 'Orcaades' the writer says: 'They find also in these Islands . . . birds which are peculiar to them, namely (in the later edition 'especially') a sort of goose which they call Claik-goose or Barnacle, which, as they say, is bred in trunks of trees or in the timbers of old ships. In proof of this they assure us that the sea-geese make their eggs as the fish do and abandon them to the mercy of the waves; that these floating eggs attach themselves to anything which they encounter, be it marine plants, or rotten wood, upon which there appears a glutinous matter, and that the heat of the sun causes them to hatch.' In the edition of 1768 the latter part of this account, the fate of the eggs after their abandonment to the mercy of the waves, is omitted.

In the 'Dictionnaire de Trévoux' (so called because it was printed at that place in 1721) (259), under 'Barnacle or Barnaque' we read: 'A species of oyster or mussel which is produced from wood, particularly that of the pine or beech which has been in the sea, especially in the Islands to the west of Scotland ("Voyez les Trans. Philosoph. t. ii, pp. 850 et 851") (260). It is also the marine animal which they call in French Macreuse (same page, 851); or the Scotch goose as Boyer calls it.' Guettard in 1783 remarks upon this: 'On ne peut pas dire plus d'absurdités qu'il y en a à l'article Bernacles du Dictionnaire de Trévoux,' and

he says that the Dictionary states that 'there is no English pilot or sailor who will not confirm this truth'—but I have not found this addendum in my editions. At any rate, twelve years before Guettard wrote, the 'Dictionnaire' had recanted its belief, and in the 1771 edition (261) the entry simply reads: 'Bernacle ou Bernache. It is the same thing as the Macreuse. Some people say that it grows and issues from the goose-bearing shell (*Conque anatifère*), and that this fish takes its origin from the rotten wood of ships and the froth of the sea. Others say that these birds grow from the leaves of trees where the shells attach themselves. These kinds of generation are no longer admitted in physical science.'

One of the thesis-compilers casually credits Sir Hans Sloane with having seen the Barnacles and their resultant geese, and even Klein (see note 272) seems to suggest it, but this is one of the traps laid for the careless reference-monger. The only possible suggestion occurs in his ponderous tomes of 'Voyages to the West Indies', where he remarks quite 'en passant' that he saw 'floating in the sea a large Piece of Wood or Timber beset with Barnacles, and on which were sitting two white small birds. This is common in these Seas, being Wood carried from uninhabited Countries by the River to the Sea' (262).

Guettard was particularly indignant with the celebrated Norwegian bishop and missionary to Greenland, Hans Egede, who recorded the facts as they were related to him by the natives concerning the 'Stok-aender' (tree-geese) in his description of Greenland in 1730 (263). He was also the author of a work on the natural history of Greenland (264) and should therefore, in the view of his critic, have been less gullible. In discussing the indigenous geese, he says: 'the third species is called Stok-aender, these do not breed by the pairing of male and female like other

birds; what is astonishing is that they breed in the sea from a viscous substance, which attaches itself to old pieces of wood which have been long afloat, upon which there breeds to begin with a sort of mussel or sea-shell, and then a little worm, which in time takes the form of a bird and leaves the shell as the young of other birds leave the egg.' His translator (265) in 1763 appends a footnote which (after the manner of Bayle's Dictionary) fills four pages, and in it he cites the flotation theory of Kircher, pointing out that 'it is not only false, but also ridiculous'. He opines that the birds lay their eggs on the ice, around islands and peninsulas, and that, when the spring thaw takes place, the eggs float away undamaged upon ice-blocks, and that is how they reached Nova Zembla and were found by the Hollanders. But he says also that it was not 'Stok-aender' that the Hollanders found—'the birds in question were what are called in Norway Gield-aender because they do not couple or lay eggs and have young like other geese'. He observes that 'it is absolutely ridiculous and even impossible that the germs contained in the eggs, when they have been broken and their contents dispersed by the waves, should retain enough vitality to produce birds. The story is false, or the facts are contrary to Nature,' but as regards his own theory he says: 'one may add that subsequent observations have confirmed the matter, for it is a matter of common knowledge in the Northern lands, and one of the truth of which there is not the slightest doubt. For my own part, I admit that I have neither seen nor observed, but very many old men worthy of credence, and the fishermen of the Northern lands where I was born, have furnished me with circumstantial accounts of having themselves come across such floating blocks of wood, upon which they have found little birds, both fully formed and partially formed, so that there is nothing that is less open to doubt than this truth

(*vérité*).’ And he ends by describing the generation from ‘this viscous matter of the sea as above described’, and with a ‘philosophical explanation’—if insects can be bred of the sea—and butterflies—why not birds? His diatribe against Kircher seems to me to savour of professional jealousy.

In 1735 we come across a new and ingenious theory put forward by Deslandes (266), who accounted for the matter to his own satisfaction, rejecting the metamorphosis theory as absurd. He goes so far as to say: ‘Je n’ai pas besoin de dire qu’une opinion si absurde a disparu avec la nouvelle philosophie.’ As regards the theory of Count Mayer (see note 180) that the birds are hatched in the shells by the heat of the sun, he observes somewhat cryptically, ‘nevertheless, quite ridiculous as this opinion seems to be at first sight, it has some foundation in the “Physique” (?) of fishermen and sailors, and this is what I am about to enlarge upon, for the benefit of such persons as like such details as these’. But his own explanation is almost as amazing. He soberly suggests that ‘certain birds establish themselves in places where there is a large quantity of mollusca, especially bivalves, firmly attached to rocks, or to wood, and there, when they are about to lay an egg, they peck at and extract the fish enclosed in these different shells, and put their egg in its place. There is no doubt that these eggs, which are too feeble to hold their position, are fastened into the shells with some viscous and adhesive fluid until the bird bursts its envelope, and taking more nourishment at last can use its wings. That is what in my opinion has led people who inhabit sea-shores to say that the shells transform themselves into birds.’ He admits having been asked for proofs of his theory, and he proceeds to produce them, relating that some English ships having been wrecked ‘between le Conquet and St. Matthieu’, some of the wreckage was brought to him,

and that he found it covered with mussels and cockles. He examined many of them and found them occupied by embryonic birds in more or less advanced stages of development, and more or less recognizable; 'some had merely half-hidden wings, in others the body was already fully formed'. The good man goes on innocently to remark that he 'thought that if these boards were replaced where the water could reach them, and sheltered from the wind, he would be able to get at something further', but these shells, which had been already sore buffeted, 'cast loose and were washed away by the sea'. He repeated his observations in 1730 when a ship which 'had passed two winters in Scotland' was wrecked, and M. Deslandes saw again with pleasure, not only the embryonic birds enclosed in mussels and cockles, but 'the eggs themselves which were enveloped in the viscous and adhesive fluid. All this confirmed me in my views that among sea birds some are cleverer and more industrious than others, who lay their eggs in sea shells where they remain in security until they are fully hatched.' It may be noted in connexion with this floridly imaginative gentleman, that he is the only 'observer' up to this time—and beyond it—who has suggested that the geese were developed with the collaboration of any marine creature other than the Barnacle, if we disregard Bodin (see p. 41), and Bonifacio (see p. 58), and Egede (see p. 94).

In the 1739 (267) edition of the work of Bianchi—who wrote under the name of Janus Plancus—on 'Little-known Shells', he gives a figure of a Barnacle and says that he has figured it, not because it is little known (on the contrary it has been 'excessively talked about' (*fatissimum*) in books on shells on account of the fable of the Macreuse Goose (268) (from which it has taken its name of *Concha anatifera*), but because he wishes to point out that it is also found in the Adri-

atic. He had observed that from its mouth it 'emitted hairs' like the *Balanus* which he had described earlier in his work (p. 29, and Pl. v, fig. 2), a point which Buonanni had passed over both in his text and figure. He also calls attention to the fact that it is not 'immediately' fixed to the wood as artists have depicted it,



FIG. 36. Janus Plancus, 1739-1760.

but hangs to it by a fleshy stalk. He gives a figure, no. 4 on Pl. v, which he repeats on Pl. v of the edition of 1760 (269) with another and better figure (see Fig. 36). In this edition he adds a further note, in the Second Appendix (p. 95), calling attention to his better figure which represents a specimen taken from the shell of a turtle to which innumerable quantities of these shells 'united together like polypetalous flowers' (*vide ante*, p. 1).

In 1742 J. C. Rieger (270), not content with refuting the Myth, endeavoured to clear up some of the

prevailing confusion among the antecedent authors as to its proper zoological position and name, which he gives as Macreuse or Macroul in French, and Scoter in English. He says that it (the Macreuse) has erroneously been confounded with the Scottish Bernicla by Sibbald, Graindorge, Childrey, Worm, Bartholinus, and de Vallemont, 'for Bernicla is of goose—and Macreuse of duck—origin, but both are manifestly oviparous'. He sums up the lengthy controversy as set forth by Tancred Robinson, and the flotation theory as set forth by de Vallemont, ending with: 'Therefore the duck is a testaceous fish. Therefore in fast-times those who eat the bird eat fish.' In his second volume he gives an explanation of the Myth; under 'Concha Anatifera' he says: 'It may have arisen from the fact that a quantity of shells were adherent to the sea weeds, and the marine duck built its nest in the sea weeds and was seen to be collected with them.' The work, which would have been a vast one, was not carried beyond the second volume, the whole comprising A to Crypt.

I referred to the description of the Barnacles given by Turberville Needham in 1745 in Part I (see p. 5). A translation of his work was published by Trembley in 1747 (271), in which after translating the passage I have transcribed (*supra*, p. 5) he appends two 'notes' of his own. In the first he says: 'The Barnacle is properly speaking a marine bird, which bears some resemblance to the duck: but they have given the same name to the marine organisms with which we are dealing, because they have imagined that this bird owes its origin to them; perhaps because it lays its eggs in their shells after having devoured the fish which was in them. However that may be, this opinion has led Naturalists to call these fish *Conques anatifères*; a generic name in which are comprised the Sea-acorns and the "Pousse-pieds"; it is for this reason that I

have preferred to use that (Barnacle) which one author gave them in English, and which is given to them also by the inhabitants of the shores of Provence and Britany.' In his second note the translator says: 'In this matter chance has been more favourable to me than it was to Mr. Needham.' He says he has had many groups of them preserved in spirit, many joined together at the extremity of the tubes, and that there is no doubt that they multiply by vegetation, and that therefore this analogy with the Polyps, which Needham suspected with as much prudence as penetration, really exists. He therefore added two figures to the plate in Needham's work, which I reproduce (Figs. 37 and 38). His description is as follows: 'Fig. 1 (Pl. vii) A Barnacle bearing two others which issue from its body, and are joined to it by their parts *b*, *d*. Fig. 2 represents another Barnacle which is growing a small one, *c*, from the opening of its shell.' He adds somewhat naïvely that 'it must be observed that these Barnacles are represented in the position they assume when attached to the bottom of a ship, for when they are attached to a rock their shell stands erect'.

It is not a little remarkable to observe how obstinately the Myth crops up, even in the face of the most authoritative disproof. In 1754 Jac. Th. Klein (272), ignoring (as usual) Albertus Magnus, remarks that the breeding of these birds was unknown prior to the account of the Hollanders, and cites Bauhin, Jonston (in his 'Dendrologia' (*sic*, see note 217)), and even the imaginative Duret. He concludes: 'Also ist diese abentheuerliche (*venturesome—romantic*) Historie bis auf unsere Zeiten fortgepflanzt worden, und findet auch noch ihre Verehrer.'

Twenty years after the enunciation of the ingenious theory of Deslandes (see note 266) a compatriot, M. Dezallier d'Argenville, in 1757 (273) advanced a proposition which seems to be inspired by his illustrious



FIG. 37

FIG. 38

A. Trembley, 1747

predecessor. He observes that 'it may well be that when the goose-bearing shell opens its valves in the sea, it facilitates the ingress of the egg of the "bernache" which is very small and soft, and is enveloped in a mucilage by means of which it fastens itself to the various objects which it encounters. This egg thus attached to the fish of the goose-bearing shell (*conque anatifère*) derives its nourishment from it in the manner of a true parasite, as well as from the sea water itself.' It is fairly obvious, as Guettard remarked (note 279), that after the process of pecking open the barnacle shell, there would not be much accommodation left for the egg of this marine cuckoo, whose innocent offspring, in his desire to improve upon Deslandes, d'Argenville thus stigmatizes early with 'the brand of Cain'. The account and explanation of d'Argenville is reproduced in Valmont de Bomare's Dictionary in 1775 (see note 277) as a possible 'explanation', though the Myth in its original form is ridiculed.

In 1767 F. Salerne, a doctor at Orleans, published an elaborate work on birds (274), which was a copiously enlarged edition of John Ray's 'Synopsis Avium' (275). In Ray's work (1713) he merely tabulated two birds, 'A. 4. *Anas niger*. Aldrov. The Great Black Duck', and 'A. 5. *Anas niger minor*. Eboracensis Scoter' with short notices, making no mention of the Myth. Salerne's enlargement goes into it at length. He says, 'all the world knows the Macreuse; as it partakes of the nature of fish it is permitted to be eaten in Lent.' He sets forth the Myth and its refutation, emphasizes the normal procedure of its generation, and quotes Hecquet's statement as to its being regarded as unclean among the Jews, according to Deuteronomy (see p. 89). The name Macreuse appears either to have been unknown to or forgotten by Ray, at any rate as late as 1685. In a letter written by him to Dr. Tancred Robinson (276) he says: 'the Macreuse

was no stranger to me though unknown by that name.' He refers to Willughby's 'Ornithology', p. 366 (see note 214), and says he has received a specimen from Sheffield 'by the name of Scoter as it seems they call it thereabouts'. But, curiously enough, he quotes the description of the 'Macreuse' by Graindorge, and wonders why it should be eaten in Lent. He says also that the name Macreuse was mentioned by Gesner or Aldrovandus or both; 'why they of the Church of Rome should allow this Bird to be eaten in Lent, and upon other fasting days more then others of this kind, but especially the Tridactylae, I see no reason.' Then follows a diagnosis of the bird itself.

Valmont de Bomare in his Dictionary (277) in 1775 ridiculed the Myth but gave d'Argenville's explanation of it (see p. 100), and under the heading 'Conques Anatifères' adds to it the whole of the description of Lepas given by Turberville Needham (see p. 5).

M. de la Faille in an elaborate 'Mémoire' upon the subject written in 1780 (278)—in which he gives us a name 'Judelles' for the birds, which I have not encountered elsewhere—protests bravely against the Myth. He remarks: 'The love of truth, physical science, and the light of experience have dispersed our aforetime judgments concerning the productions of Nature. How, in spite of this assistance, has an origin so fabulous as that which has been attributed to the Macreuse and to other birds of this kind been able to keep afloat upon the ocean of centuries, and pass down to us without modification?' He cites the authority and arguments of 'Le Docteur de Grain d'Orge', for whose posthumous work we are indebted to 'the celebrated Malouin', and gives a long and well-reasoned description of Lepas with a fine full-page plate at p. 345. He then quotes Deslandes (see note 266) at length, and observes that he was the only author who credited mussels and 'cammes' (*chame* = cockle) as well as bar-

naclcs (*sapinettes*) with the production of geese, and then quotes at equal length the theory of d'Argenville (see note 273). He concludes with a zoological description of the bird itself, pointing out the impossibility that so large an egg as that of the Macreuse could be deposited in a flat bivalve shell. He repeats the account of the Hollanders (see note 151) and tells us that he had himself kept Barnacles under continuous observation in the 'Ance de Coreille' near La Rochelle, and could safely assert that they underwent no miraculous change such as had been attributed to them.

The year 1783 saw the publication of perhaps the most elaborate study of the Myth, with which I close my procession of authors, rivalling in its voluminous précis of antecedent authors the monumental work of Schott (note 219). This was the 'Mémoire' of Guettard (279), who set himself seriously to work to 'lay the ghost' once and for all, having observed symptoms of a recrudescence of the Myth. I have frequently referred to his expressed views upon the earlier writers. He says: 'Quelqu'un, mauvais observateur, a vu du milieu des coquilles dont les conques anatifères, ou pousse-pieds, ont le corps ouvert, sortir des pattes, qui en se développant s'étendent en forme de plumes d'oiseau, et n'a pas poussé ses observations plus loin . . . l'erreur s'est répandue de plus en plus. Erreur qui de nos jours, au reste, est prête à reparaitre.' He considers the origin of the Myth to lie in the fact that fishermen and shore-dwellers never found the eggs of the geese. He made a vast and exhaustive study of every author to whose work he could gain access, and, properly ignoring the vague references to classic authors, he concluded that we must go back three hundred years from the time at which he wrote to find that the records are due to authors 'steeped in the profoundest ignorance of the ordinary phenomena of nature'. The earliest authority known to him, how-

ever, was Alexander ab Alexandro (see note 73) in the 1549 edition of his 'Dies Genialibus'. He made the unique observation that J. C. Scaliger (see note 83) having recorded his belief in the Myth, his son J. J. Scaliger (see p. 54, and note 168) had with filial piety accepted it. From Alexander ab Alexandro down to J. B. della Porta in 1650 he gave a précis of the views of twenty-four authors (all of whom figure in the present volume), and at this date he tells us that the period of doubting begins—a somewhat loose and superficial statement. 'Nous allons', says he, 'entrer dans un temps où la lumière a prévalu sur l'erreur.' He gives the palm, as to 'le premier de ces hommes éclairés', to Wolfgang Franzius, 1653 (the earliest edition of Franzius, however, was dated 1605, *q.v.*, note 164), and there follow equally laborious résumés of thirty further authors (also dealt with in the present volume) extending down to d'Argenville (1757), some of whom were by no means *éclairés*, as we have seen during the course of this work. He speaks with respect of some of them, but lashes others with a pretty wit, especially Bodin, de Vallemont, and d'Argenville, and he gravely remonstrates with 'Eggede', who, as bishop of the Church and a naturalist, should have known better than to promulgate the 'floating germ' theory in his History of Greenland, a theory concerning which he observes that the 'spawn' and 'mucilage' of de Vallemont and d'Argenville 'ne sont qu'une production de l'imagination de ces Auteurs'—indeed he contests the statements of d'Argenville point by point, making the obvious remark that if a Barnacle shell were to be pecked open by a marine bird there would not be much of the shell left in which to grow the young goose. He concludes this important monograph with the paragraph: 'No one who has read this Mémoire can fail to be amazed that an absurdity such as we have been discussing has occupied the attention of Scien-

tists (*Sçavants*) of the first rank for centuries, and that it has taken all this time to establish a truth which a properly conducted observation would have established for ever . . . it would have been sufficient to watch the life-history of the Barnacles' (cf. the recorded observation of La Faille, *supra*); 'it would even have sufficed to make a careful and complete dissection . . . but that would have required some care and attention and it was more convenient to give a loose rein to the imagination, especially in the case of those Scientists who are more familiar with books than with Nature . . . Let this be said in terminating this *Mémoire*.'

And that is as far—perhaps fortunately—as we can carry the matter. There only remains to be recorded an advertisement which appeared in a Sunday Conservative paper 'The Patriot' (279 a) on the 24th May 1807 of a 'Barnacle Tree, or tree bearing geese, found at sea by Capt. Bytheway and now on show at Spring Gardens'. The Barnacles are stated to have had necks two feet long. I have not found any other record of this 'last appearance'.

Several origins have been suggested for the Myth. That which rests itself upon philology has been discussed at length by Prof. Max Müller and may, I think, be discarded. As he himself has said, 'Words without definite meanings are at the bottom of nearly all our philosophical and religious controversies' (280). In the great Barnacle Controversy we have a vast number of such words heaved at us. According to Max Müller, the Brent goose was called 'Berniculus' by the Latin-speaking clergy as a diminutive of 'Hibernicus' (Irish), the origin of the Myth being, so far as our researches enlighten us, Irish (but see Kohut, p. 17), that this became Hiberniculus, and so, by dropping the first syllable, 'Berniculus.' In Celtic we get for Barnacles and other shell-fish 'Bernacae',—'barnagh'—'berniche'—'bernak', and I agree with

Sir Ray Lankester that the ship's-barnacle got its name from a diminutive of 'bernak' or 'barnak'. It became in Latin 'bernacus'—with a diminutive 'bernaculus', and so > 'barnacle'. Max Müller opined that later generations, finding the same name 'bernikle' or 'barnacle' applied indiscriminately to a bird and a fish, jumped to the conclusion that the one bred from the other.

Another philological explanation derives the name from 'pernacula', a diminutive of 'perna' = a ham, 'pernacula' being changed to 'bernacula'—and indeed 'perna' is to be found spelt 'berna' by some old philologues. 'Perna' was a bivalve mollusc, so called from its resemblance to a small ham (*pernacula*), referred to (*inter alios*) by Pliny (281), which from its description would appear to be a species of *Mya*. 'As to the origin of the word "Barnacle" or "Bernicle" as applied to the goose', says Lee, 'we must understand that this bird *Anser leucopsis* was formerly called the "brent", "brant", or "bran" goose and was supposed to be identical with the species *Anser torquatus*, which is now known by that name. The Scottish word for goose is "clake" or "clakis" (282), and I think that the suggestion made long ago to Gesner (283) by his correspondent Joannes Caius is correct, that the word "barnacle" comes from "branclakis" or "barnclake"—"the dark-coloured goose".' All very satisfactory to the philologues. 'Bernikle' was the bird, 'Barnacle' was the fish—the rest is easy.

No; the mistake arose mainly from the striking resemblance in all circumstances between (as we have seen) the feathers of a bird and the 'cirri'—the plumose appendages of a Cirripede crustacean; and the innate love of the masses for marvels did the rest—did not the inhabitants of Tartary believe that lambs grew on trees?—but that, in Mr. Kipling's phrase, is another story, not to be touched upon further than I have done in this place (284).

In two different passages Dr. John Hill (285) has given what would appear to be the simple explanation, following upon the above. The Branclake or Brent-goose abounds at certain seasons of the year in the Western Islands of Scotland and elsewhere, but rarely (? never, see p. xv) breeds there. The aborigines never finding their eggs on the shore, but finding the Barnacles with their *cirri* exposed or readily attainable and closely resembling feathers, it needed but little stretch of a marine credulity to arrive at the conclusion that the Barnacles did actually contain little birds. The floating and stranded logs speedily took rank as fallen trees of the shore, or branches fallen from them, and the chain of evidence was, for the simple observer as for the hunter after marvels, complete. Add to this that the indigenous clergy, to whom no doubt the legend promulgated by continental monks and the marvellous tales of the early travellers were familiar, were far from unwilling to foster a belief which supplied their fast-day bills of fare with a substantial and succulent addition, and it is no wonder that the Myth 'died hard'. Is it not also on record that in Bombay, where fish is prohibited food to certain castes of the population, the priests have decided that fish is a sea-vegetable, and in this guise may be eaten without breaking caste (286)?

And from the East Sir Ray Lankester contributes a curious parallel. He says: 'I am informed that in Java there is, according to "native" story, a shell-fish the animal of which becomes transformed into a bird—said to be a kind of snipe—and flies from the shell. I have been shown the shell by a Dutch lady who has lived in Java; it is a large fresh-water mussel, one of the *Unionidae*.' *Omnia ex Oriente*, indeed! It is not surprising that in Shakespeare's 'Tempest' we find an echo of our subject, when Caliban observes to Trinculo and Stephano, after having been made the

sport of Prospero's and Ariel's 'magic': 'We shall lose our time and all be turned to barnacles.'

And here we may leave the Myth which finds an echo only in the modern French colloquial expression for a cock-and-bull story, or a ridiculous rumour—'un canard'. The Barnacle-myth was as well known in France as it was here, and on its attaining to its final discredit became known as 'l'histoire d'un canard'—which in its shortened form survives to this day.

PART III

THE MYTH IN THE DAWN OF HISTORY

THE phase of this inquiry which now demands our attention would, had I adhered to the chronological sequence which I have endeavoured to adopt in Part II, have preceded that section of this book, but it deals with a period so remote, and is so entirely dependent upon iconography and upon theories deduced therefrom, that I have deemed it more expedient to relegate it to the conclusion of my work.

It owes its development primarily to the distinguished French zoologist, M. Frédéric Houssay, who in the year 1895 published his views in the 'Revue Archéologique' (287), and no less to our own more distinguished compatriot Sir Ray Lankester, who dealt with it in a masterly manner in his 'Diversions of a Naturalist' (288). It owes its origin to several representations of what Sir Ray Lankester has termed a 'barnaculized goose' (Houssay's '*lepas anserisé*'), upon Mycenæan pottery (289), the most significant of which occurs on one of the handles of a large vase or 'crater' (Fig. 39), found by Dr. Schliemann in a vast Cyclopæan house in the Agora of the Acropolis at Mycenæ, figured by him in his work on Mycenæ (290), and again, more perfectly, by MM. Perrot and Chipiez (291), and to several figures which seem to be derived from it, chief among which is an Ossuary from Crete (292) (Fig. 40) which gives us the evolution of geese (or ducks) from the leaves of an aquatic tree or plant.

I cannot do better than to quote certain passages from Houssay's original article upon the subject. Perrot had submitted to him (in 1891) several of the figures which were to serve as illustrations to the work I have

referred to above, representing marine animals and birds. Of these he says: 'As regards some of these (Cuttle-fish, Nautilus, etc.) the matter was easy; not that their representations were exactly like those con-



FIG. 39. Crater handle from Mycenæ (Fig. 214 in Schliemann ; 489 in Perrot and Chipiez).

structed by the scientists of to-day to illustrate all the characters of these creatures, but because the primitive artists, with consummate skill, had made a concise and very accurate selection of main characteristics, drawing only the essential lines which furnish the animal with its characteristic attitude, and which enables all who have seen it to recognize it without hesitation. These animals had certainly been seen, and drawn *after* nature, though not copied exactly *from* Nature . . . I concluded that the animals which were

accurately delineated had frequently been seen, whilst the others had not, either because they were rare in the region, or perhaps, rather, because they did not really exist at all. This second alternative seemed to me

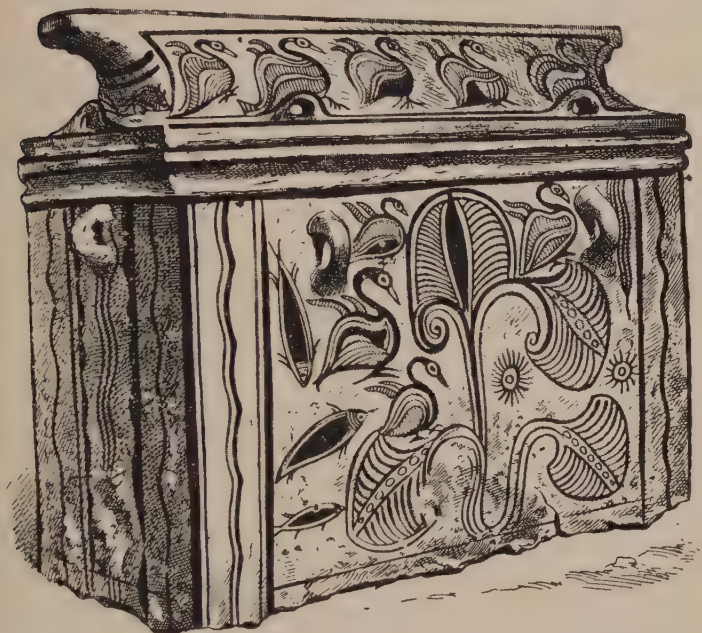


FIG. 40. The 'Ossuary' from Crete (Fig. 481 in Perrot and Chipiez).

to be the correct view when my attention was arrested by a sort of bird, a goose or a duck, the representation of which gives us a strange mixture of the real and the impossible—see the Ossuary of Crete (P. and C., vol. vi, p. 239). All the specimens (of birds) painted upon this Ossuary have the same form, but no two of them have the same plumage, which would seem to suggest that the artist had not known, had not been able, or had not dared to delineate these mysterious creatures too precisely. Furthermore, each of these animals has

on its back two small appendages, improbable if we regard them as the wings of birds, but almost rigorously exact, as to position and form, if one looks to them for the appendages of a barnacle (*anatife*), the cirripede crustacean which one finds—as a rule—attached to floating logs. There are those, no doubt, who will ask themselves how figured forms, which, whilst they present peculiar features, on the whole represent birds, can suggest the idea of a crustacean which is, after all, little known. It is because there is, precisely, a legend, which has reached us from a nebulous antiquity adown the ages, familiar to those who have interested themselves in the history of ideas concerning spontaneous generation, and which sets forth at length that the Barnacle-geese is born of the barnacle (*Lepas anatifera*), the crustacean in question. There was no doubt in my mind that I had before me, if not the origin, at any rate an early version of this peculiarly persistent legend, which exists to the present day among the fishermen of our coasts. I seemed even to understand, in contemplating these drawings, how an interpretation apparently so fantastic had come into being: birds in general appearance, barnacles in detail. . . . I asked myself whether the animals thus represented had merely been selected on account of their beauty or strangeness, or whether they had not established their position, as explanatory phenomena, in some more or less confused theory concerning the origin of Life? In a word, were not the decorators of Mycenæ always symbolists, even when they appeared to be the most realistic? M. Houssay then goes into the natural history of the Barnacle, and he suggests that as Barnacles are only tossed on shore after a storm, 'and that as their discovery takes place always at a period of fatigue and of nerve-strain caused by several days of barometric depression, one may assume that their discovery must cause at least a moment of surprise to the ignorant

fishermen . . . The finding of Barnacles is therefore always associated with an idea of surprise, astonishment, or mystery.' M. Houssay then discusses and disposes of the philological explanations of Max Müller (see p. 105).

It will, I think, be useful at this point to introduce the description of the celebrated Ossuary (Fig. 40), given by Perrot and Chipiez. They have set forth and discussed at great length the more or less sophisticated and conventionalized representations to be found upon Mycenæan pots, of Cuttle-fish (293), and the Nautilus (294), to the former of which Sir Ray Lankester has drawn attention in the work I have cited (see Figs. 44, 52, and 53). These, though intensely interesting, would take us too far from our subject, and greatly extend a volume which has already attained unanticipated and unimagined proportions. The description of the drawings on the Ossuary (Eng. trans., p. 394) is as follows: 'Fish swim around large clustering leaves whereon ducks are perched. These leaves play the part which superstition attributes to cirripede shells (*Lepas anatifera*). Three of the leaves have just opened and given passage to as many ducks, in the act of emerging from a groove seaming their centre. To make the relation between bird and foliage clear to all, each bird preserves the distinguishing feature of the leaf out of which it came. Thus the dark oblong mark that forms the centre of the leaf returns on the two ducks to the left of the top leaf. This elongated black lozenge is absent from the lower leaves, and no sombre markings appear about the birds perched on them. The middle duck on the left is larger than the others, because it is older, and therefore more complete. None of the creatures have reached their full development; this is shown by the articulated filaments on the backs of the ducks, which, in time, will grow into wings.' In a later passage (p. 408) they observe: 'What struck

us most, as we examined the decorations of these vases, is the predilection shown by the painter for marine organisms, polyps, and shells that live and die on the piece of rock where they had their being . . . Where was it most likely that such beliefs would originate and stimulate his curiosity? Was it not on the sea-shore among a population that lived on the sea and by the sea?’

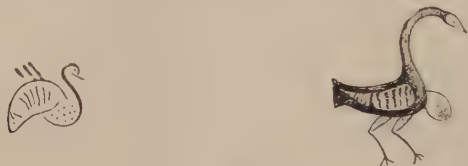


FIG. 41a. From the Ialysos cup
(P. and C., fig. 465).

FIG. 41b. From an Ialysos amphora (P. and C., fig. 458; Houssay, fig. 5).



FIG. 42. From the lid of the ‘Ossuary’.

To return to Houssay. ‘The seed of the legend is planted: it has only to fructify. The vases of the Mycenaean period show us the legend already formed, giving rise already to diversified interpretations, and to research with a view to explanations.’ He then discusses other developments of the Barnaculized goose; first the somewhat sketchy bird (Fig. 41a) (295), the three appendages on the back of which suggest the wings; then the procession of five geese (Fig. 42) (296) where the appendages are more wing-like, and almost normal feet are added, whilst the bodies of the birds are more ‘barnacular’. (Why should not I, also, coin a word, following august examples?) It

will be observed that the markings on these birds are all different. He then deals with the goose from the Crater-handle (Fig. 39, *vide supra*), which is closely related to that on the Ossuary, observing that we are clearly concerned, not with true birds, but with creatures of mixed nature depicted with a certain amount of artistic licence. Whereas the cirri in the former instances become wings, here they provide a foot (but *vide infra*). In the next development (Fig. 41b) (297), the stalk of the Barnacle seems to protrude from the breast of the bird, and the sophisticated neck is left free.

He then proceeds to deal with the arboreal origin of the birds, returning to the invaluable Ossuary. He does not reproduce the description I have given above from Perrot and Chipiez, but calls attention to 'certain details which cause me to think that the artist wished to suggest a precise explanation. Take the

topmost leaf of the plant (Fig. 43a) and observe the point at which the left "lobe" curls round (the right-hand one is hidden by another leaf). Why this unreal spiral? It is in order that we may be able to evolve the bird by simply folding the leaf in two (Fig. 43b) and allowing the "lobe" to unroll, as a budding leaf unrolls itself as it opens (Fig. 43c). The pattern of the venation, which is quite chimerical, reproduces, when folded up, the designs which one finds upon the Barnacle shell—as in the third bird in Fig. 42.' The rest of his article deals with the conventionalized representations of other marine creatures, especially the Cuttle-fish and its development into anthropomorphology, which has been dealt with and fully illustrated by Sir Ray Lankester (Fig. 44, from Houssay's Figs. 7 and 8, and

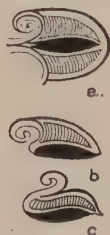


FIG. 43. Development of the Goose from the leaf on the 'Ossuary', from Houssay.

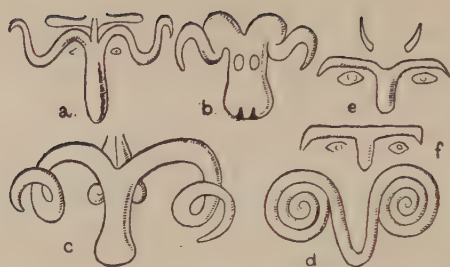


FIG. 44. Development of the Cuttle-fish motif—described by Sir Ray Lankester.

Fanciful designs by primitive artists, showing change of the cuttle-fish (octopus or 'poulpe') into a bull's head and other shapes.

a, Octopus drawn on a goblet from Ialysos (Rhodes) (P. and C., fig. 483), the arms reduced to two, the eyes detached.

b and c, Bull's head variations of the octopus, from designs found at Koban in the Caucasus.

d, Spiral treatment of the arms of the octopus (a pose actually seen in living specimens).

b, c, d from E. Chantre: *Recherches . . . dans le Caucase*. Paris, 1886. Vol. ii. Atlas.

e, f, Human faces painted on Cretan jars across the whole width of the neck, the design being derived from the octopus with detached eyes as in Fig. a. Such designs survive long after their origin is forgotten, as (according to M. Houssay) the legend of the barnacle and the goose survived two thousand years after the Mycenæan drawings assimilating one to the other had been forgotten.

From Houssay, fig. 13. Cf. P. and C., figs. 369, 448; *Ilios*, figs. 227-8, 232-5, 986-9, 1291-8. For f cf. *Ilios*, fig. 190.

Figs. 52 and 53). I see no reason for doubting that many of these designs were the prototypes of patterns which have survived to this day in the glass-works of Venice-Murano, especially the Sea-horse and the Nautilus, which are sophisticated and converted into semi-fabulous monsters.

‘In the same spirit’ (I quote Sir Ray) ‘it seems that they observed and drew the Barnacle floating on timber or thrown up after a storm on their shores. They detected a resemblance in the marking of its shells to the plumage of a goose, whilst in the curvature of its stalk they saw a resemblance to the long neck of the bird. The Barnacle’s jointed plumose legs, or cirri, and other details suggested points of agreement with the feathers of the bird. They brought the Barnacle and the Goose together, not guided thereto by any pre-existing legend, but by a simple and not uncommon artistic desire to follow up a superficial suggestion of similarity, and to conceive of intermediate connecting forms.’

In Fig. 45, which I take from Sir Ray’s chapter, A is a somewhat diagrammatized Barnacle attached to a piece of wood—it is taken (with modification) from Houssay’s article; B is the ‘barnaculized goose’ from the Crater-handle (Fig. 39); and C is a clearly defined drawing of a Barnacle in its shell, one side of which has been removed. The limb *pe* in C is the rod bearing the seminal duct, and this general view is, no doubt, what Sir Robert Moray and any of his predecessors who opened a Barnacle actually saw. On the Mycenæan pottery (B in Fig. 45 taken from Fig. 39) this seminal rod has been elaborated—and it is not a little remarkable that these primitive artists should have observed an organ which is extremely obscure in the living creature—into a kind of swimming foot, whilst an eye has been put in at the end of the stalk. It is curious, as Sir Ray observes, that so acute an observer as

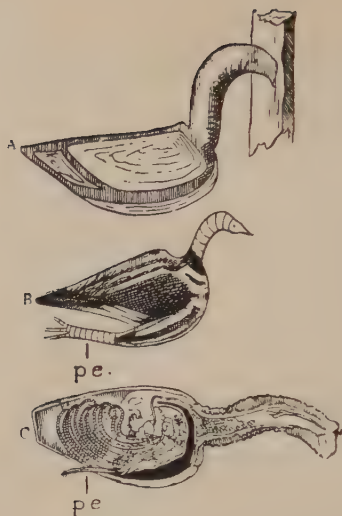


FIG. 45.—Described by Sir Ray Lankester.

- A. Slightly diagrammatized *Lepas**.
- B. The treatment of *a* on Mycenæan pottery (Houssay, Fig. 4).
- C. Anatomical figure of *Lepas* laid open.
- pe.* The seminal duct.

*From Houssay, p. 5, Fig. 1. Houssay's fig. shows two diagrammatized *Lepas*, with Cirri emerging from the upper edges.



FIG. 46. Mycenæan pottery from Schliemann (Fig. 40).



FIG. 47. Ibid. (Fig. 42).



FIG. 48. Ibid. (Fig. 45).

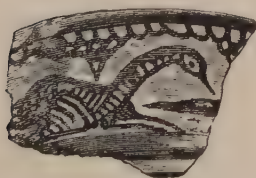


FIG. 49. Ibid. With Barnacle valve markings (Fig. 43).

Houssay should not have called attention to this derivation of the 'foot'. This feature recurs among the undescribed fragments of pottery from Mycenæ, relegated by Schliemann to his plates, and is to be found on Pl. x, figs. 40 and 45, of his work (Figs. 46 and 48). In Fig. 46 the rod-like appendage is prac-



FIG. 50. Mycenæan pottery from Schliemann.
An analogous bird (Fig. 33).

tically identical with that which we see on the Ossuary and on the Crater-handle, but in Fig. 48 it appears to be enormously developed. The birds in Schliemann's figs. 40, 43, and 45 which I reproduce (Figs. 46, 48, and 49) are evidently related, having markings on the body of the bird strongly suggestive of the composite shell-plates of the living Barnacle. There is another fragmentary bird with a neck similar to that of the barnaculized goose (Fig. 50) (as well as two snails with similar necks (Fig. 51)) on Schliemann's Plate viii. The figures which I have given here are merely isolated specimens taken from pottery which must have been made in enormous quantities, and the goose-barnacle *motif* must have been a very widely adopted one. The

supposition of M. Houssay, with which Sir Ray entirely agrees, is 'that some later Levantine people—to whom these decorated pots became known, either in the regular way of trade, or as sailors' "curios"—were led to attempt an explanation of the significance of the pictures drawn upon them, and interpreted the fancies

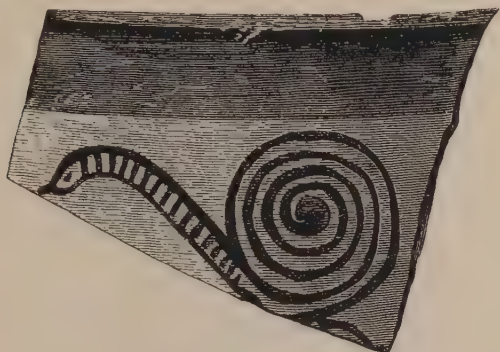


FIG. 51. Ibid. An analogous Snail (Fig. 30).

of the artist as careful representations of astonishing fact. The existence of a tree which produces buds or fruits which become birds, and of a Barnacle which becomes transformed into a goose, is the matter-of-fact interpretation of the few pictures of these animals which have come down to us modern men, painted on the few surviving pots of that remote Mycenæan industry now in our Museums.'

How these designs came down to mediaeval times baffles conjecture. It would appear that 'art stopped short in that cultivated court' about 800 B.C. (298). Neither in the legends of Greece nor of Rome do we find any trace of the Barnacle-Goose Myth, though it seems to have had its origin, as it were, at their gates. The Mycenæans would seem to have migrated to the region of the Caucasus—where relics of their influence dating from 500 B.C. have come to light (see the de-

scription of Fig. 44)—and it is possible that the missing links in the history of this Myth may yet be discovered; but undoubtedly, as Sir Ray has observed, these Mycenæan pottery paintings remove the origin of the story to a period two thousand years older than that of the Irish monks.



FIG. 52. Gold plate from Mycenæ (Schliemann, fig. 240).

But now I ask myself whether it is not possible to carry the Myth back at least another thousand years? Archaeologists seem to be agreed—so far as Archaeologists can ever be said to agree—that the earliest colonists of Mycenæ came from Troy, and a merely casual perusal of Dr. Schliemann's works on Troy and Mycenæ (299), directing one's attention only to the ornamentation of pottery and gold ornaments and other articles, seems to bear out this view. The Cuttlefish ornamentation, which persisted down to the third City of Hissarlik, is of frequent occurrence; of a remarkable instance on the lid of a box (*Ilios*, p. 360, fig. 264) Dr. Schliemann remarks 'the same ornamentation occurs at Mycenæ . . . and is very frequent on the objects of gold found by me in the royal sepulchres of Mycenæ' (*Mycenæ*, p. 166, fig. 240 (see Fig. 52)

and p. 181, fig. 270); and many of the gold bracelets figured by Schliemann bear the spiral ornaments which Houssay has shown to be derived from the Cuttle-fish (*Ilios*, p. 495, figs. 873-4, and cf. Fig. 33d). 'In the sepulchres of Mycenæ', says Schliemann, 'I found five golden cups of exactly the same form as



FIG. 53. Stone vase from Mycenæ (P. and C., fig. 478).

those from the first City of Hissarlik (the Acropolis of Troy, *c.* 1500-2000 B.C.), the cuttle-fish . . . as well as that curious sea-animal which so frequently occurs on the pottery of Mycenæ' (*Mycenæ*, pp. 166, 181, 268). Perhaps the most perfect combination of nature and conventional art is seen on the stone vase from Mycenæ figured by Perrot and Chipiez (*loc. cit.*, fig. 748), which is reproduced in Fig. 53.

Goblet d'Alviella has made an intensive study of the migration of symbols (300), especially that of the Gammadion or Swastika from Troas, via Mycenæ, westwards to northern and southern Europe, and eastwards as far as Japan, and he gives an interesting 'pedigree'

which will, I think, be of interest reproduced here. It is as follows:



Is it not permitted to us to postulate that, like the Swastika, the 'barnaculized goose' which Houssay has, I think rightly, regarded in the light of a symbol, reached Europe in the same way and, by reason of its evident antiquity, found itself collated with the mystery already surrounding *Lepas anatifera*, and, sooner or later, with the inclinations of the clergy of the Early Christian Church?

I might well close this volume with the apposite words which terminate the concluding chapter on the 'Barnacle Tree' in the 'Herball' of John Gerard: 'And thus having . . . discoursed somewhat at large . . . we conclude and end our present Volume with this wonder of England. For the which God's name be ever honoured and praised.'

NOTES

1. Sir W. Scott, 'Fortunes of Nigel', Edinburgh, 1822, vol. i, ch. i. The colloquial term 'barnacles', signifying 'spectacles', has been variously derived from the Old French 'bericle'—in Modern French 'besicle'—and the Middle Latin 'bericulus', a diminutive of 'berillus', a beryl. The German 'Brille' is clearly connected with this. In the dialect of Berri the form 'berniques' is found for spectacles. Dr. Latham, the philologist, regarded it as a corruption of the French *binocles*, and yet another would have it from 'binnacle', the illuminated box of the mariner's compass. These derivations are discussed at length by Prof. Max Müller (*op. cit.* in note 35, p. 583).
 Cf. R. L. Stevenson in 'An Inland Voyage' (1878): 'The engineer apprentices . . . raked us with a gleam of spectacles. For though handsome lads, they were all (in the Scotch phrase) barnacled'.
2. 'A scourge to an horse, and a bernicle to an asse.' Wyclif's version of Proverbs ch. xxxvi. v. 3. The 'twitch' or forked implement with which unruly horses are controlled is known as a 'barnacle'.
3. 'He barnacled himself to Gershom now and shipped with him always', Adeline D. T. Whitney, 'The Gayworthys', Boston, U.S.A., 1865, ch. xxiv, p. 236.
4. 'Little Dorrit', *passim*.
5. A. P. Herbert, 'The Wherefore and the Why', London, 1921, p. 36.
6. See p. 105, and the article by Victor Carus in his 'History of Zoology' (see note 36).
7. Linnæus, 'Systema Naturæ', ed. x, vol. i, 1758-9, p. 667, No. 9 (with 19 references); ed. xii, vol. i, pt. ii, 1766-8, p. 1109, No. 18 (with 25 references) *L. anatifera*.
8. *Ibid.*, ed. xii, p. 1108, No. 11 (with 6 references) *L. balanoides*.
9. The nomenclature both of the crustacean and of the bird varies amazingly. In note 38 I have given a list of names and their variants which reaches a total of sixty-five. The confusion was recognized and dealt with by W. F. Martyn (among others) in his 'New Dictionary of Natural History' (London, 1785), where he observes: 'The Barnacle is sometimes called the Soland-goose, or Anser Scotticus. Some naturalists erroneously maintain that it is the same with the French Macreuse, or macrout; others that it is the same with the diable de mer. Dr. Robertson, however, marks the difference; describing the Barnacle as of the goose kind; the Macreuse as of the

duck kind; the *diable de mer* as of the moor-hen kind. The same author endeavours to prove that the *Macreuse* is the same with the scoter, or *anas niger minor*, described by Ray and Willughby, in contradiction to the opinions of M. Cattier (see p. 63, and note 198), who took it for the great coot of Bellonius (Belon, *q.v.*, and Bodin, p. 41); and also of others who mistook it for the puffin of the Scillies and the Isle of Man' (*vide post*, pp. 101 and 102, and notes 274 and 276).

10. *Anser bernicla*, Linnæus, 'Systema Naturæ', ed. x, 1758, p. 124, No. 11 (with 8 references). Ed. xii, 1766, p. 198, No. 13 (with 19 references).
11. *Anelasma squalicola*. Darwin, 1851 (*syn. Alephas squalicola*, Lovén, 1844).
12. *Coronula balaenaris* (Müller). See the letter from Sir R. Sibbald (note 237) to Sir Hans Sloane (note 262) concerning the *Pediculus caeti* of Bocconi, in Phil. Trans., vol. 25, no. 308 (1706), p. 2314.
13. This association was observed by more than one of the early writers. See the work of Janus Plancus (p. 97, and *op. cit.* in note 269, p. 95), and Willughby in his 'Ornithologia' (see p. 71, and note 214) records the association, saying, 'We have also seen a marine Turtle caught in the Mediterranean sea, between Sicily and Malta, upon whose back two bunches of these shells had grown.'
- 13a. E. J. Banfield, in his 'Tropic Days' (London, 1918, p. 106), writing from Dunk Island, off the coast of Queensland, says: 'The goose-necked barnacle, with its five valves, comes in its myriads attached to derelict coco-nuts, floating logs, and pumice stone.'
14. 'Goldseeker' Station xiA. North of the Wyville Thomson Ridge, 61° 42' N. 2 W. Depth 1236 m. Temp.—1.04° Cent.
15. *Pollicipedes* received their name as early as the sixteenth century from their likeness to a toe-nail, '*quod pollicem in pedibus similitudinem habeant*'. Rondelet, in Gesner, 1558 (see note 283).
16. Proc. Nat. Acad. Sci. Washington, 1918, vol. iv, p. 382.
17. Geol. Mag. (vi), 1919, vol. vi, p. 278.
18. Geol. Mag. (vi), 1915, vol. ii, p. 113. Ann. Mag. Nat. Hist., S. 9, vol. xiv, 1924, p. 318.
19. The morphology of some of the Palaeozoic (?) forms referred to the Cirripedia has been dealt with fully in Mr. T. H. Withers's British Museum Catalogue, Machaeridia, March 1926. In this work these forms have been referred to a new group, Machaeridia, and evidence given for regarding them as a new group of Echinoderms. Whether this view will be accepted or not is a matter for the future, but in face of the new evidence they can hardly be held to be Cirripedes.
20. C. Darwin, 'A Monograph of the Sub-class Cirripedia', 2 vols., Ray Soc. London, 1851-4.

21. Cuvier, in his 'Règne Animal', Paris, 1817, vol. i, p. 531, says, *sub* 'Les Bernaches': 'Le Nord de l'Europe nous envoie en hiver l'espèce si célèbre par la fable qui la faisait naître sur les arbres comme un fruit.' This is of the Bird. In the Mollusca volume (vol. ii, p. 504) he puts them in as the 6th class, and says: 'les Mollusques Cirrhopodes établissent, par plusieurs rapports, une sorte d'intermédiaire entre cet embranchement (*division*) et celui des animaux articulés'. Under 'Les Anatifes' he says: '*Lepas anatifera* a pris son nom d'anatifère, à cause de la fable qui en faisait (*sic*) naître les bernaches ou les macreuses etc.'
22. J. Vaughan Thompson, 'Zoological Researches', no. iii, Cork, Jan. 1830, p. 69. 'On the Cirripedes or Barnacles, demonstrating their deceptive character, the extraordinary metamorphosis they undergo, and the class of animals to which they indisputably belong' (Pl. ix). See also 'Discovery of the Metamorphosis in the second type of the "Cirripedia"', viz. the Lepades, completing the Natural History of these singular Animals, and confirming their affinity with the Crustacea', Phil. Trans. Roy. Soc. 1835, p. 355, pl. vi.
23. T. Needham, 'New Microscopical Discoveries . . . Dedicated to the Royal Society', London, 1745, ch. xi.
24. A. Trembley, 'Mémoires pour servir à l'histoire d'un genre de Polypes d'eau douce à bras en forme de cornes', Leyden, 1744.
25. The 'note' of Trembley led Guettard (see note 279), who apparently worked from this translation only, to credit Needham, at the least, with having afforded grounds for argument in favour of the Barnacle Myth (*vide post*, p. 99).
26. It is no part of the task I had set myself—a task which has assumed colossal proportions relatively to the original scope of this volume—to record the work of early scientists, *i.e.* those writing serious zoological works, after the Myth had been refuted and was appearing only in the fanciful works of disguised, or avowed, Thaumato-genists, on the Barnacles *per se*. The curious may find a lengthy list of such in the Catalogue of the Library of Sir Joseph Banks, which may be consulted in the British Museum or in the libraries of scientific societies. It stands to reason that the subject must crop up incidentally in Part II, in discussing the lucubrations of many early writers who set themselves to the refutation and discrediting of the whole Barnacle-geese Myth in all its subtle ramifications.
27. T. Huxley, 'Anatomy of Invertebrated Animals', London, 1877, p. 294.
28. Sir Ray Lankester has recorded the same 'life history' in the case of the Ascidians or Sea-squirts (see 'Science from an Easy Chair' (London, 1912), ch. xxii) which begin life as free-swimming tadpoles, and then fasten themselves by their heads to the object to which they will remain attached for the rest of their lives.

29. The 'Beagle' Expedition, with Charles Darwin on board, left England 27 December 1831, and returned 2 October 1836. See C. Darwin, 'Journal of the Voyage of H.M.S. *Beagle*', new edition, London, 1852. His 'Monograph on the Sub-class Cirripedia' was published in two parts by the Ray Society (London): Pt. I. 'The Lepadidae', 1851; Pt. II, 'The Balanidae', etc., 1854.
30. See W. T. Calman, 'The Life of the Crustacea', London, 1911.
31. The systematics of the group have been excellently treated by H. A. Pilsbry in two monographs: (a) 'The Barnacles in the U.S. National Museum', U.S. Nat. Mus. Bull. 60, Washington, 1907; and (b) 'The Sessile Barnacles in the U.S. National Museum, including a monograph of the American species', U.S. Nat. Mus. Bull. 93, Washington, 1916.
32. It has been suggested that ships-barnacles of amazing potency were mentioned by Pliny, but this is not the case. Philemon Holland in his translation, 'The Historie of the World, commonly called the Naturall Historie of C. Plinius Secundus', London, 1601, bk. xxxii, cap. 1, confuses the Sucker fish *Remora* with the Barnacle, relating the story of how one of these 'Barnacles' sticking to the bottom of Caligula's ship held it fast against the efforts of rowers and the wind. Cf. the study of this phenomenon, executed with the same industry as marked his work on the Barnacle Goose, by Gaspar Schott (*op. cit.*, note 219, pp. 1310-12). Rabbi Kohut (see p. 17, and note 59) is responsible for the statement that the Myth was known to the Venerable Bede (673-735), but there is no suggestion of it in the work to which he refers: he says, 'Bede says in his work on Natural History, "De Natura Rerum", that the Goose *Barliata* grows on rotten wood by the sea. It hangs by its beak until it falls.' He evidently has confused Bede's short treatise under this title ('*Bedae de Natura Rerum et temporum ratione libri duo. Nunc recens inventi et in lucem editi*' (by I. Sichardus), Basle, 1529, fol.) with some other of the many works similarly entitled, but I cannot tell which.
- Plutarch has been credited with a reference to the Myth, but the diligent Carus (see note 36), says: 'Le seul passage qu'on puisse rapporter à notre sujet parle seulement des insectes qui naissent des arbres ou dans les arbres.' Referring to similar attributions to Aelian and Pliny, he observes: 'Il n'y a rien qui s'y rapporte ni dans l'un ni dans l'autre.'
33. Petrus Damianus in the Paris (1610) edition of his Works (*Epistolae* lib. ii, ep. xvii, p. 238). The passage, as quoted by Max Müller, runs: 'Unde et terra illa occiduis partibus hanc consecuta est dignitatem ut ex arborum ramis volucres prodeant, et ad pomorum similitudinem animati atque pennati fructus erumpant?' He goes on to say: 'Sicut enim referunt, qui se

vidisse testantur, paulatim incidit pendulum quid ex ramo suspendi, deinde in imaginem volucris, speciemque formari: postremo quantulumcumque plumescens, hiatu rostri sese ab arbore dividit, sicque novus aëris habitator ante paene discit volare quam vivere.'

I have not seen this edition; in the earlier one, 'Petri Damiani Tomus Primus continens Epistolarum libros octo', Rome, 1606, bk. ii, epist. xvii, p. 126 E, we get the locality, which is interesting, taken in connexion with what we shall find later regarding the Oriental origin of the Myth. The passage begins (he has been saying that God, who created Nature, can at will alter its course): 'Unde de Thilon Indiae insula, hujusmodi vires habet ut omnes in ea rami arborum numquam nudentur tegmine foliorum. Unde et terra illa'—and so on as above. The whole letter is an amazing compilation entitled 'De Dei Omnipotentia'. The matters dealt with are indicated by sensational marginal notes, e.g. 'Utrum Deus possit reparare Virginem post ruinam'—'Scandalosum est dicere Deum non omnipotentem'—and the natural corollary 'Quod absque dubio Deus post lapsum reparare Virginem possit'.

p. 137. In the best edition of Peter Damiani's works, by Constantino Caetani, 1606-40 (reprinted in *Patrologia Latina*), it is the *Opusculum XXXVI: de omnipotentia dei*, chap. xi (*Patr. Lat. t. CXLV*, col. 614 A-B).

34. The work of Saxo Grammaticus, 'Gesta Danorum' or 'Historia Danica', was begun about 1185 and completed about 1190. A translation by O. Elton and F. York Powell was published in London in 1894.
35. Max Müller, 'Lectures on the Science of Language', 2nd series, London, 1864. Lecture XII, 'Modern Mythology'. (In the edition of 1885, where it is greatly amplified, vol. ii, p. 572.)
36. J. Victor Carus, 'Geschichte der Zoologie', Munich, 1872. Das Dreizehnte Jahrhundert, p. 190. French translation 'Histoire de la Zoologie', by P. O. Hagenmüller, notes by A. Schneider. Paris, 1880. Article iv, 'Le Treizième Siècle', p. 153. Carus, in dealing with similar myths, observes, in introducing this one: 'Parmi toutes ces fables, il en est une douée d'une vitalité particulière qui s'est perpétuée à travers les siècles, bien que de bonne heure des voix autorisées se soient élevées pour montrer son inadmissibilité.'
37. I, also, have failed to identify this reference in spite of a laborious examination of the finely indexed edition of A. Holder (Strasbourg, 1886). Other authors both ancient and modern have recorded the testimony of Saxo Grammaticus since Sebastian Münster, but no verification of the reference has ever been vouchsafed. I have little or no hesitation, therefore, in saying that, in my opinion, Münster's statement arose from an already existing tradition (though I have found no recorded trace of it), or from a

misconception of some unidentified passage on his part.

38. It is interesting to observe the earliest forms of the word 'Barnacle' in the eleventh and twelfth centuries. I have noted in compiling this work the amazing variations to which the word 'Barnacle', whether applied to the crustacean or to the bird, has been subjected, as well as the other names that have been applied to them, and I find that my list is, in alphabetical order, as follows: Barbates, Barliaste, Barliata, Barliathe, Barnaces, Barnacle (first used I think by Caxton in 1480), Barnakes, Barnakle, Barnaque, Barnesca, Barneta, Bartlathe, Baumgans, Benette, Bernaca, Bernache, Bernachia, Bernacle, Bernacula, Bernaque, Berneca, Bernecela, Bernechia, Bernekke, Bernesta, Berneta, Bernicha, Bernicla, Bernicle, Bernicula, Beronichia, Branta, Brante, Bunette, Carbates, Clake, Clakguise, Clakguse, Clakigus, Clakis, Clakus, Clakuse, Clayk, Crabran, Cravan, Cravant, Crevan, Diable de mer, Grandbanc, Gravagne, Gravaigne, Greveigne, Judelle, Macreuse, Macroule, Macrout, Malcot, Nouvette, Oye Nonette, Pie Annet, Rotgans, Rotguisen, Scoter, Soland—Solon and Solun Goose. Mostly derivatives or translations, but more often, no doubt, liberties taken by the scribe or the printer. It will be observed that this view was not absent from the minds of some of the writers (cf. notes 101 and 102), and indeed, the orthography of both French and English was barely stabilized by the seventeenth century.
39. 'Alexandri Neckam de Naturis rerum' edited by Thos. Wright in 'Rerum Britannicarum medii aevi scriptores, or, Chronicles and memorials of Great Britain and Ireland during the Middle Ages'. London, 1863. Cap. xlvi (p. 99). 'Ex lignis abiegnis salo diuturno tempore madefactis originem sumit avis quae vulgo dicitur bernekke. A superficie itaque ligni exit quaedam viscositas humorosa, quae tractu temporis lineamenta corporis aviculae plumis vestitae suscipit, ita quod a ligno dependere videtur avicula per rostrum. Hac quidam minus discreti etiam tempore jejunii vescuntur, eo quod ex ovo non prodierit beneficio maternae incubationis. Sed quid? Constat quod prius fuerint aves quam ova. Numquid ergo aves quae ex ovis non eruperunt potius legem piscium quoad esum sequuntur, quam illae quae ex sementina traductione ortae sunt? Nonne item aves ex aquis originem sumpserunt, secundum caelestis paginae doctrinam irrefragabilem? Unde et bernekke non nascuntur nisi ex lignis salo obnoxiiis, aut ex arboribus consitis in marginibus riparum.'

Also *loc. cit.*, A. Neckam 'de Laudibus divinae sapientiae', p. 384, ll. 481-4:

Ligna novas abieгна salo madefacta, jubente
 Natura, volucres edere fama refert;
 Id viscosus agit humor, quod publica fama
 Asserit indignans philosophia negat.

Neckam has been properly credited with the authorship of 'the first English encyclopaedia' (see W. B. Johnson, in *Blackwood's Magazine*, 1927, p. 321). The book I have quoted contains the first English references to chess, silk-worms, glass mirrors, and the mariner's compass. No wonder he held decided views upon the Barnacle Goose.

40. Sylvester Giraldus Cambrensis, 'Topographica Hiberniae', in 'Anglica, Normannica, Hibernica, Cambrica, a veteris scripta', Frankofurti, 1603, p. 706 (under Henry II, 1154-89). Cap. xv, 'De bernacis ex abiete nascentibus, earumque natura'.

[This account is appended to the History of Ireland of Richard Stanihurst with interesting comments. It is to be found in 'Richardi Stanihursti Dublinensis de Rebus in Hibernia gestis, libri quatuor', Antwerp (Plantin), 1584, p. 230, cap. viii]. 'Sunt et aves hic multae, quae bernacae vocantur (*Note. A nostris Bernaculae appellantur, Stanihurst*), quas mirum in modum contra naturam natura producit. Aucis (*ancis* in original; see p. 78 and note 230) quidam palustribus similes, sed minores. Ex lignis namque abiegnis per aequora devolutis, primo quasi gummi nascuntur. Dehinc tanquam ab alga ligno cohaerente conchylibus testis ad liberiores formationem inclusae per rostra dependent. Et sic quo usque processu temporis firmam plumarum vestituram indutae, vel in aquas decidunt, vel in aeris libertatem volatu se transferunt, ex succo ligneo marinoque occulta nimis admirandaque seminii ratione simul incrementaque suscipiunt. Vidi multoties oculis meis plus quam mille minuta hujusmodi avium corpuscula, in litore maris, ab uno ligno dependentia, testis inclusa et jam formata. Non ex harum coitu (ut in avibus assolet) ova gignuntur, nec avis in earum procreatione unquam ovis incubat: in nullis terrarum angulis vel libidini vacare vel nidificare videntur. Unde et in quibusdam Hiberniae partibus, avibus istis tanquam non carneis quia de carne non natis episcopi et viri religiosi jejuniorum tempore sine dilectu vesci solent. Sed hi quidem scrupulose moventur ad delictum. Si quis enim ex primi parentis carnei quidem, licet de carne non nati, femore comedisset, eum a carniū esu non immunem arbitrarer. . . . Erubescere, miser, erubescere, et saltem ad naturam recurre.' After this passage from Giraldus and his argument about the leg of Adam, Stanihurst discusses the question whether Adam *was* flesh, not being born of flesh—he admits that Eve was born of flesh, being derived from Adam—and goes on to plead the fish nature of Barnacles, 'Quidquid est caro, ex carne communi naturae cursu gignitur. Ast talem ortum Bernaculae non habent: non sunt igitur carnes.' And he refers the 'advocatus diaboli' to St. Paul (1 Cor. xv. 39). It is repeated by

Abraham Ortelius in his 'Théâtre du Monde'—l'Isle de Hybernie ou Hirlande (see notes 111-13).

41. Sir E. Ray Lankester, 'Diversions of a Naturalist', London, 1915, pp. 100-141. In these fascinating chapters the principal authorities cited by Prof. Max Müller are discussed, and it was the interest with which Sir Ray has invested the Myth that first led me to ply the rake of research among the often somewhat ghostly references to be found scattered among the works of these early writers.
42. O. H. Prior. 'L'Image du Monde de Maître Gossouin. Rédaction en prose. Texte du Manuscrit de la Bibliothèque Nationale; Fonds Français, no. 574. Lausanne and Paris, 1913, p. 133. Pt. ii. vi. Aa Fo. 71b. 'Il a devers Yllande seur la mer uns oisiaus qui volent: et croissent en arbres par les bes; et quant il sont presque meur, cil qui chieent a terre ne pueent vivre, et cil qui chieent en yaue vivent.' This MS. is in a fourteenth-century handwriting.
43. See S. de Ricci, *A Census of Caxtons*; Oxford (for the Bibliographical Society), 1909, 1st edition, p. 96. There are thirty-three copies of the first, and nineteen of the second editions known. The first edition printed in Paris was dated 1495.
44. The Caxton (?) translation is as follows: (Sig. g4). 'There is toward Irlond on the one syde a maner of byrdes that flee and they growen on trees and on olde shipp sides by the bylles And whan they be nygh rype/they that falle in the water liue and the other not' they ben called bernacles.'
45. Published by Ch. Cahier, *Mélanges d'Archéologie*, i, ii, Paris, 1851, p. 216, chapter headed: *L'Arbre dont li oisel naisent et chient ius quant il sont meur*.
 'Physiologes nos dist qu'il est un arbre sor une aighe de une mer, qui porte oiseax qui resambent ouwes, mais il sont l pou plus petit. Et quant ces oiseax croissent, il pendent par le bec à l'arbre tant qu'il sont meur. Et quant il sont meur, si cheent jus sicon une poire fait d'un arbre quant èle est meurre. Et quant cil oisel chient jus, cels qui chient en l'aigh'e il flotent en voie et sont gari, que il n'ont garde de mort. Et cels qui chient de fors l'aighe sor la terre, cist demerent iluec tot coi gisant et muèrent et sont perdu.
 'Ce sénéfie que nus hom n'est rengénéré ne parfais, se il n'est avant cheus en l'aighe où il est lavés en nom de baptesme. Et ceaus qui ne sont lavé en aighe par nom de baptesme, il sont perdu si comme li oiseax qui ciet de l'arbre sor la terre, qui mort est et perdu.'
- Ch. Cahier has a short commentary upon this, without any useful details. But in his Plate xxi (fig. A. M) he reproduces a picture of the manuscript (Arsenal 283 [presumably an old press-mark, not in use now]).
46. The reference to Vincentius Bellovacensis given by Max Müller

is 'Speculum Naturae', xvii, 40 (not xvi, 40 as usually quoted), and by Gaspar Schott (see note 219) as 'Bibliothecae Mundi, seu Speculi Majoris', vol. ii, bk. xv, cap. 150. I have not found these. His 'Speculum Naturale' was published without *locus* in 1472, at Strasburg in 1481, and at Venice in 1494; his 'Speculi majoris V. Burgundi . . . tomi quatuor' ('the great compendium of all the knowledge of the middle ages'), at Venice in 1591. I have used as my reference the later edition; 'Vincentii Burgundi in ordine praedicatorum venerabilis episcopi Bellocensis Speculum Quadruplex' Duaci (Douai), 1624, vol. i, col. 1181, bk. xvi, cap. xl, where Max Müller's quotation is to be found.

The whole passage is as follows, and I have included in brackets [] the parts of the narration which were extracted by the compiler of the 'Ortus Sanitatis' in 14— (see p. 20), for the cap. xiv, which I reproduce in Fig. 12.

Caput xl. De Barlathe, sive bernaca. [Bartlathe sunt aves de ligno crescentes], quas vulgus bernacas appellat. [Fertur enim quod lignum de abiete marinis aquis incidens, quando successu temporis putrescere coeperit humorem ex se crassum emitit, ex quo densato formantur parvae species avium ad magnitudinem alaudarum. Primumque sunt nudae, deinde maturantes plumescunt ac rostris ad lignum pendentes per mare fluitant usque ad maturitatem, donec se commoventes abruptant, sicque crescant, et roborentur usque ad debitam formam.] Harum multas et ipsi vidimus, virosque fide dignos, qui eas adhuc pendentes se vidisse testati sunt. Anseribus minores sunt, colorem habent cinereum ac nigrum. Pedes ut anates sed nigros. [De his autem Jacobus Achonensis Episcopus in Orientali historia loquens dicit, quod arbores sunt super ripas maris, de quibus hae procreantur rostris infixis arboribus dependentes. Tempore vero maturitatis ex arboribus decidunt, ac per incrementa proficientes sicut aves caeterae volare incipiunt.] Veruntamen nisi decedentes cito aquas invenerint vivere non possunt, quoniam in aquis est nutrimentum earum et vita. Notandum autem quod non in ramorum summitatibus, sed in arborum corticibus ac stipitibus pendent. Crescunt autem arboris humore, et roris infusione, donec habentes plumas, ac robur vitae, corticibus abruptantur. [De his itaque certum est quod in orbe nostro circa Germaniam nec per coitum generant, nec generantur.] Sed nec earum coitum apud nos ullus hominum vidit. Unde et carnibus earum in quadagesima nonnulli etiam Christiani in nostra aetate in locis ubi avium hujusmodi copia est uti solebant. Sed Innoc. Papa III, in Lateranensi Concilio generali hoc ultra fieri vetuit. Hae volucres herbis et graminibus ut anseres vivunt. Potum vero differre sicca comedentes nullatenus possunt. *Phil.* Bernaca quae ex arbore nascitur, in quibusdam

- quoque in Flanderae partibus invenitur. Haec avis non habet superfluitatem, sicut nec arbores.
47. Jacques de Vitry, or Jacobus de Vitriaco, a French canon, who having been Bishop of Acre returned to Rome in 1220, where he died in 1244. He is referred to by the early authors as 'Aconensis', or sometimes, owing to careless amanuenses, as 'Athonensis' or 'Athenensis', as will be seen later. He appears to have been deeply revered by Thomas de Cantimpré, and according to Meyer (*op. cit.* in note 70, vol. iv, p. iii) 'knew Greek and Arabic; but mixed the seen and the unseen, the truth and the fable'.
 48. Jacobus de Vitriaco, 'Historia Orientalis', ch. 91. This is Max Müller's reference: he gives the text: 'In quibusdam partibus Flandriae aves ex arboribus procreantur rostris arboribus infixis dependentes; postquam autem tempus maturitatis advenerit, ex ramis statim decidunt, et sicut aliae volucres volare incipiunt. Carnis autem earum in quadragesima manducant, nec aliqua admiratione ducuntur qui talia videre frequenter consueverunt.' In another passage, which I take from 'Jacobi Gretseri . . . Mantissa ad Tertium Tomum de Sancta Cruce in qua Liber Tertius Historiae Orientalis Jacobi de Vitriaco antea ineditus', etc., in the 'Opera Omnia Jacobi Gretseri', Ratisbon, 1734, vol. iii, p. 137, he says (against a marginal note, which reads: 'In extrema Scotia, ad Orchades insulas'): 'Est arbor quae loco foliorum producit aves, quae quidem rostro affixae sunt trunco, donec sint ex toto formatae et perfectae; hoc ubi evenit extrahunt rostrum e trunco et cum aliis avibus volant.' The earliest printed edition appears to be that of Douai, 1597.
 49. Thomas Brabantinus, or de Cantiprato, called Cantimpratensis from his home at Cantimpré, Belgium (*nat.* 1201, *ob.* 1270). All that we know of his work is derived from an incunabulum, written in a Bavarian dialect with Austrian forms by Conrad von Megenberg, 'Hye nach volget das puch der natur', Augsburg, 1475, of which six or seven editions are known between that date and 1499. Von Megenberg was born in 1309, and translated his work from the Latin. Early therein he seems to indicate that the author was Albertus Magnus, but later he refers to his source as 'an anonymous Latin MS. in the possession of Albertus Magnus'. But it is now known to be the work of Thomas Cantimpratensis, the author of a well-known work on Bees. He was born near Brussels in 1201 and died in 1270. His 'De Natura Rerum' was written between 1230 and 1244. It was never printed in the original language, but Vincent of Beauvais included the greater part of it in his 'Speculum Naturae' (see note 46). There are several MSS. in Paris and some in Germany, from which Fr. Pfeiffer constructed his

‘Das Buch der Natur von Konrad von Megenberg, die erste Naturgeschichte in Deutscher Sprache’ (Stuttgart, 1861). Bk. iii, B., ‘Von dem Gefugel in ainer gemain’, cap. xi. ‘Von dem Bachad’ gives us the paragraph quoted by Max Müller: ‘*Bachadis* haizt ain bachad und haizt etswâ ain wek, das ist ain vogel der wehst von holz, und das holz hât vil âst an im, dar auz die vögel wachsent, alsô daz ir zêmel vil an dem paum hangt, die vögel sint klainer wan die gens und habent fûsz sam die ânten, sie sint aber swarz an der varb, reht sam aschenvar, si hangent an den paumen mit den snâbeln und hangent an der rinden und an der stammen der paum, si fallen pei zeit in daz mer und wachsent auf dem mer, unz si beginnent ze fliegen. etlaich lâut âzen die vögel, aber Innocentius der vierde (*sic*) pâbist des namen verpôt die selben vögel in einem concili ze Lateran.’

Carus (see note 36) credits Cantimpratensis with a statement that ‘the Barliates grow, as is said by Aristotle, upon trees; they are the birds which the common people call Barnescas’, adding the note, ‘Dans Aristote on ne trouve aucune donnée qui ait trait à cette fable; on y pourrait tout au plus rapporter cette opinion d’Aristote qui pense que les insectes naîtraient dans le bois pourri.’

50. Albert of Lauingen, or Albert Graf von Bollstadt, *nat.* 1193, *ob.* 1280.

51. Albertus Magnus, ‘De Animalibus Historia’. Earliest printed editions, Rome 1478, Mantua 1479. In H. Stadler’s recent edition ‘Nach der Cölner Urschrift herausgegeben’ (2 vols., Münster i. W., 1920, vol. ii, p. 1441) is a passage indexed as ‘Anser arborum’, ‘boumgaus’ (*sic*), *Branta bernicla*. L. 23.4. ‘Et est quantum genus illo (*Artis genere*) minus . . . quod vulgus dicit nasci de arbore.’ Max Müller’s footnote (*op. cit.*, p. 599), gives with the reference ‘De Animalibus’, lib. xxiii, p. 186, ‘Barbates mentiundo quidam dicunt aves: quas vulgus Bonngas (*Baumgangs* debet esse) vocat eo quod ex arboribus nasci dicuntur a quibus stipite et ramis dependent: et succo qui inter corticem est nutritae: dicunt etiam aliquando ex putridis lignis haec animalia in mari generari: et praecipue ex abietum putredine, asserentes quod nemo unquam vidit has aves coire vel ovare: et hoc omnino absurdum est: quia ego et multi mecum de sociis vidimus eas et coire et ovare et pullos nutrire sicut in antehabitis diximus’, etc. This passage is quoted and commented upon by Gesner in 1555 (*op. cit.*, note 283, p. 107), and is given in full by Schott, who derived it from the Venice edition of 1495 which he used, and where it occurs at p. 228 (Stadler: *op. cit.*, bk. xxiii, § 31 (19), p. 1446). He quotes at length a similar passage ‘apud Gesnerum’ (‘Historia Animalium’, bk. xxiii, Gesner, *op. cit.*, p. 108).

‘Barbates aves falso quidam dicunt nominari *Baumgangs* (id est anseres arborum) eo quod ex arboribus nascantur a cortice et ramis

dependentes : et succo qui inter corticem est nutriantur . . . ' and so on as before.

52. This passage from Albertus Magnus and the preceding one from Vincent of Beauvais were among the first notices of the Myth ever printed; cf. the 'Ortus Sanitatis' (q.v. post p. 20), in 14—. (First dated edition 1491.)
53. Parva Naturalia. De Vegetabilibus. First printed edition Venice, 1517. I quote from the more accessible (and legible) edition of C. Jessen: 'Alberti Magni . . . de Vegetabilibus Libri vii; Historiae Naturalis Pars xviii', Berlin, 1867, bk. i, tract. i, cap. iv, par. 21 'Scimus autem quod conchylia sunt animalia sapientia intellectuelleque carentia : et sunt secundum aliquid plantae, et secundum aliquid animalia ; ut in libro de animalibus dicetur ; et solus sensus est causa quare animalia illa dicantur esse' (ref. to 'de Animalibus', lib. xxi, tract. i, cap. 6).
54. I have not found this in bk. vi, tract. ii, c. 450 of the 'De Vegetabilibus' where he treats of the properties of Salvia, but the matter is referred to by more than one author. G. B. della Porta in his 'Della Magia Naturale' (see note 171) says : 'Marsilio Ficino togliendo da Alberto dice, che dalla putrefazione della Salvia se nasce un uccello simile alla merola, la quale vien animata dalla vita del mondo.' Marsiglio Ficino was a terribly prolific writer ; I have not run this reference to earth in his vast 'Opera' published at Basle in 1576.
One may compare the remarkable story told by Manlius to the effect that from Salvia 'putrefied under manure is generated a certain bird like a white blackbird (!) having a tail like a serpent, whose ashes when sprinkled on a lamp cause a house to appear to be full of serpents'. J. J. Manlii Luminare Majus quondam elaboratissimis, etc., Venice, 1566, p. 30, col. 2, § d. *Elelispacus, i. salvia*.
55. In the 'Tractatus Fratris Rogeri Bacon de Multiplicatione Specierum' which follows the 'Opus Majus' in the monumental edition of J. H. Bridges (Oxford, 1897, vol. ii, cap. vi, p. 451) occurs the passage : 'Hoc dico propter plantas et matres in animalibus, quae in semine deciso perficiunt species in effectibus completos, cum adiutorio virtutis caeli et motorum in caelestibus. Sed tamen nec plantae nec matres facientes suas species in corporibus extra se complement eas, velut ignis complet speciem factam in ligno ei appropinquato extra se in effectum plenum similem ei nomine et definitione.' It must be borne in mind that Bacon in using the word *species* intends to convey the meaning 'force'; it would be somewhat far-fetched to suggest that such passages as the above (there are several) were inspired by the Myth of the Barnacle Goose.

It occurred to me that possibly Roger had been confused with Francis (it has happened !), but the only passage I have been able to

- find in the works of Francis Bacon which gets anywhere near the subject occurs in the 'Silva Sylvarum' Cent. vii, par. 609 (ed. Amsterdam, Elzevir, 1648, p. 355): 'Quae plantas et animantia aliquo naturae confinio jungunt, haec sunt, quod fixa existant et motum localem ignorent, licet aliquem in partibus habeant, ut ostrea, cochleae, similiaque.' The same theme recurs in Cent. ix, par. 900 at length, but it seems to me that this derivation would be as far-fetched as the other.
56. Gervaise of Tilbury, 'Otia Imperialia'. Bk. iii (Tertia Decisio) paragraph 123. 'Cum secundum insitam primae creationis naturam ex primis generantibus animalia prodeant per generationem et corruptionem; novum et inauditum est apud omnes peraeque nationes, quod in quadam majoris Britanniae parte quotidianum est. Ecce enim in Archiepiscopatu Cantuariensi, comitatu Cantiae, ad confinium albaciae de Faverethsam, in littore maris arbusculae nascuntur ad quantitatem salicum.' He states that they fall into the river when their growth is complete. See G. W. Leibnitz, 'Scriptores Rerum Brunsvicensium,' Hanover, 1707-1711, vol. i, p. 1004, or the more accessible edition of F. Liebrecht, Hanover, 1856, p. 52. The first published edition appears to have been that of Helmstedt, 1673.
57. 'Quadragesimali tempore assatae comeduntur, considerata potius ad hoc nativa processione, quam carnis sapiditate. Avem vulgus *barnetam* nominat.'
58. Max Müller's reference for this statement is quite obscure. It reads: 'Mordechai, Riva, 1559, leaf 142a'. There is a work by Mordecai ben Hillel Ashkenazzi (in Hebrew), entitled 'Simmane ve Keissure hammordecai' ('The signs and abbreviations of the Mordecai'), published at Riva in 1559, but there is no reference to the Myth on leaf 142a, which deals only with the Rolls of the Law; Kohut (*vide post*) merely says that Mordecai ben Hillel of Regensburg (c. 1300) wavered between the various doubtful views concerning the matter.
59. The article 'Barnacle Goose', in the Jewish Encyclopaedia (ed. 1925, vol. ii, p. 538), is a mine of information upon the Myth as it affected Jewish ritual, and terminates with a very extensive bibliography of the subject.
60. See 'Monatsschrift für Geschichte und Wissenschaft des Judenthums', ed. Frankel, Graetz, 1869, February, vol. xviii, pp. 88-93, 'Die Bernikel-Gans; ein mittelalterlicher Mythos'.
61. J. C. Galton, 'Barnacles, their Facts and their Fictions', Popular Science Review, 1873, vol. xii, pp. 384-400, Pl. civ.
62. Sephar ha-Zohar ('Le Livre de la Splendeur') J. de Pauly and E. Lafuma Giraud. Paris, 1906-1911 (6 vols.). The name

and authority of the Rabbi Abba permeates the whole of the Zohar.

63. Carus appends here the reference 'Jose Deah, 84, 15', and adds in a note, Jellinck: Beiträge zur Geschichte der Kabbala. Leipzig, 1852, p. 48 (where is the passage from the Zohar), and also Lewysohn: Zoologie des Talmud. Frankfurt a/M. 1858, p. 362 (where is the passage from the Schulchan Aruch). This latter book was composed by Joseph Karo, at Nicopolis in 1522, and contains the whole of the Zohar, which Carus states to have been traditionally written by Jochai in the second century. Loria in a Hebrew work, 'Considerations upon the high antiquity of the Sohar', Johannisberg, 1857, says that the Sohar (*sic*) existed before the Babylonian Talmud (c. 500 A.D.), and that certain portions of it are undoubtedly of the time of Jochai, *i.e.* the second century. In any case, Carus opines the work existed before 1000 A.D. and contains what is the earliest reference to the Myth, adding, 'c'est de cette partie du Monde, qui a été le berceau de tant de contes merveilleux, l'Orient, qu'elle viendrait'.
64. Sir John Mandeville, 'The Voiage and Travaile of Sir John Maundervile, Kt.' Reprinted from the edition of A.D. 1725, edited by J. O. Halliwell, London, 1866, cap. xxvi, p. 264.
Mandeville started on his travels in 1322, and was away for thirty-four years. There are nineteen MSS. of his 'Journal' in the British Museum, the 1725 edition, from which the 1866 edition was reprinted, being taken from 'Cotton. Tit. C. xvi', written about the year 1400. The earliest printed edition was in Italian, 1537; English editions appeared in 1568 and 1598.
65. He stole his account from Odericus of Pordenone. See note 187.
66. Aeneas Sylvius Piccolomini, 'Opera quae extant omnia', Basle, 1571. The passage occurs in the 'Historia de Europa', ch. xlvi, p. 443, as follows: 'Audiveramus nos olim arborem esse in Scotia, quae super ripam fluminis enata fructus produceret anectarum formam habentes: et eos quidem cum maturitati proximi essent, sponte sua decidere alios in terram, alios in aquam et in terram dejectos putrescere; in aquam vero demersos, mox animatos enare sub aquis, et in aere plumis pennisque evolare. De qua re cum audivimus (avidius, *fide* Schott) investigaremus, didicimus miracula semper remotius fugere, famosamque arborem non in Scotia, sed apud Orcades insulas inveniri; illud tamen nobis in Scotia miraculum repraesentatum est.' The first editions of the 'Epistolae' of Pope Pius II are dated 1470, 1478, and 1483 (Louvain).
67. The 551st night (vol. iv, p. 375) in Sir Richard Burton's translation (London, 1897, Library edition): the 301st night (vol. vi, p. 135) in Dr. J. C. Mardrus's translation (Paris, 1901), 'un oiseau

qui naissait de la nacre marine, et dont les petits vivaient à la surface des eaux, sans jamais voler sur la terre'.

Sir E. Denison Ross, who has gone into the chronology of the Arabian Nights with some care, tells me that two versions of the story of Sindbad seem to have existed in Persian, according to an Arabic writer of the tenth century, and that it is generally regarded as Indian in origin, but that the exact Indian prototype has not been discovered so far as he is aware.

68. M. Steinschneider, 'Zur pseudepigraphischen Literatur, insbesondere der geheimen Wissenschaften des Mittelalters', Veitel Heine, Ephraimsche Lehranstalt (Berlin), Wissenschaftliche Blätter, Samml. 1, 1862, etc., p. 25. The author tells us of an Oriental fable of trees bearing beautiful maidens on a mystical island called Wak-wak, and others of a like nature.
69. 'Ortus Sanitatis', Mainz (Jac. Meydenbach), 1491. Republished at Strasburg in 1497, 1507, 1517, and 1536, and at Paris in 1539.
70. E. H. F. Meyer. 'Geschichte der Botanik'. Königsberg, 1854-7, 4 vols.
71. E. S. Burgess, 'History of Pre-Clusian Botany. Memoirs of the Torrey Botanical Club', vol. x, New York, 1902, p. 317. At the *locus citatus* a complete bibliographical study of the work down to 1530 may be consulted.
72. The earlier, undated edition in the British Museum is tentatively dated in the catalogue: Strasburg, 1490. The texts are identical but the words are even more abbreviated than in the dated edition. Thus cap. xiv is in 21 lines, instead of 25, and cap. xx is in 16 lines instead of 20. The woodcuts are as nearly identical as the early wood-engraver could make them.
73. Alexander ab Alexandro. 'Dies Genialibus'. Rome, 1522, bk. iv, cap. 9, fol. 90 (verso): 'quosdam veluti fungos brevipediculo juxta aquas gignere, paulatimque adolescere inter fluctus, lapsisque diebus etiam moveri, se tamen a trunco minime divelli. Interjecto deinde tempore . . . fungos ejusmodi ita genitos a trunco sponte evelli, mox alio emissum et penniculis enatis evolare, et marinas aves existere vescique pisciculis littoralibus, perque maria passim enatare pariterque apud incolas mirum non haberi. Sed quia passim id evenire soleat, quotidiano usu miraculum esse desinere.'
74. 'Scotorum Historiae' lib. xviii, a prima gentis origine, cum aliorum et rerum et gentium illustratione, etc. s.l. Jodocus Badius [1526-7]. There is no date on the title-page, nor is there a colophon. The Dict. Nat. Biog. gives the date as 1527. Such of the preliminary matter as is dated gives us April and May, 1526. The passage which concerns us begins on fol. xiii (verso). This was translated into 'Scots' in the year of his death under the title, 'The Hystory and

Chroniclis of Scotland, with the Cosmography and dyscription thair of, compilit be the noble clerk maister Hector Boece channon of Aberdene. Translatit laity in our vulgar and commoun langage, be maister Johne Bellenden Archedene of Murray, And imprintit in Edinburgh, be me Thomas Davidson, prenter to the Kyngis nobyll grace' (1636).

A modern edition is the 'History and Chronicles of Scotland, written in Latin by Hector Boece Canon of Aberdeen and translated by John Bellenden Archdean of Moray and Canon of Ross'. Edinburgh, 2 vols., 1821. The passage occurs on p. lviii; ch. xiv of the introductory 'Cosmographie and Discription of Albion'. An English translation was made by William Harrison, and included in Hakluyt's 'Voyages' in 1577 (see note 189). In the folio Paris edition of 1575, the passage occurs at pp. 8-9 of the prefixed 'Regni descriptio'.

75. Pitsligo, a coast parish of Buchan (which appears later as 'Butquhaine') in north Aberdeenshire. The castle, whose ruins are still to be seen, is half a mile S.S.E. of the adjoining parish of Rosehearty, and was begun in 1424 and finished in 1666.
76. Tyrie, a parish adjoining Pitsligo to the south.
77. An ancient parish of Aberdeenshire.
78. The translation of Bellenden is somewhat free and condensed, and regard being had to the importance of this passage I think it well to append the original Latin, which runs: 'Restat jam de anseribus quos Clakis appellant (*Scoti*) quosque vulgo perperam in arboribus nasci in his Insulis (Hebridibus) credunt, ea quae hujus rei cognoscendae multo jam tempore studiosi, re diligenter explorata perspectaque cognovimus, disserere. Mari enim illis interjecto mihi magis eorum procreandi vis quaedam inesse videtur quam alicui alii rei. Variis enim modis, verum in mari semper, provenire conspeximus. Etenim si lignum in id mare projicias, temporis tractu primum in eo vermes excavato ligno nascuntur, qui sensim enatis capiti, pedibusque atque alis, plumas postremo edunt: demum Anseribus magnitudine aequales, cum ad justam pervenerint quantitatem caelum petunt, avium reliquarum more remigio alarum per aëra delati. Id quod luce clarius anno a partu Virgineo millesimoquadringentesimo nonagesimo, plurimis spectantibus in Buthquhania visum est. Nam quum in eam ad Pethslege castellum fluctibus hujuscemodi lignum quoddam ingens dilatum esset, rei novitatem qui primi conspexerant admirantibus ad loci illius dominum accurrentes rem novam annuntiant. Is adveniens, trabem ferrâ dividi jubet. Quo facto, ingens confestim apparet multitudo partim vermium (aliis adhuc rudibus, aliis membra quaedam formata habentibus) partim etiam jam formatarum perfecte avium: inter quas quaedam plumas habebant, aliae im-

plumes erant. Itaque rei miraculo stupentes, jubente domino, in templum Divi Andreae Tyrae (pago cuidam nomen est) lignum comportant; ubi et hodie manet, undique sicut a vermibus perforatum. Hujus simile duobus subinde annis in Taum aestum appulsum ad Bruthe castellum, multis accurrentibus ostensum est. Nec diversum est quod exinde duobus rursum annis Lethi portu Edinburgensi universum populum spectare contigit. Ingens enim navis, cui insigne ac nomen Christophori erat, ubi tres perpetuos annos ad unam Hebridum in anchoris constitisset huc reducta atque in terram subducta, plena omnia, exesis trabibus, qua mari semper mersa fuerat, vermium hujuscemodi rudium partim, aut perfectam nondum avis formam habentium, partim jam absolutorum, ostendit. Caeterum cavillari id quispiam possit, arborum truncis ac ramis illis in Insulis natarum virtutem hanc inesse; Christophorum quoque illum ex trabibus Hebridianis contextam afferens. Itaque quod ipse quoque abhinc septem annis vidi, haud gravabor in medium adducere. Alexander Gallovidianus Kilkendensis Ecclesiae Pastor, vir praeter insignem probitatem, rerum admirandarum studio incomparabili. Is cum extracta algâ marinâ inter caulem et ramos, a radice statim pariter et usque ad cacumen enatos, qua conjunguntur, conchas adnatas videret; rei novitate attonitus, mox cognoscendi studio eas aperit; ubi magis multo quam antea stupefactus constitit. Non enim piscem in testis conclusum comperit, sed (dictu mirabile) avem, ac pro illius magnitudine testas quoque inautas: quibus enim parvae inerant, et ipsae quoque apertae eas pro quantitate conplectebantur. Itaque ad me extemplo, quem ejusmodi rerum cognoscendarum jam olim magna cupiditate detentum noverat, celeriter accurrit, remque omnem monstrat, non magis rei miraculo obstupefacto quam re tanta ac tam inaudita conspecta laeto.

Hac enim re satis arbitror non haec procreandarum avium semina aut truncis, aut arborum inesse fructibus, sed ipsi Oceano, quem Maro et Homerus patrem rerum haud temere appellavit. Verum quoniam id fieri videbant cadentibus in aquam arborum ad littus positarum pomis, ut temporis tractu ex illis eae apparerent volucres alites; in eam sententiam adducti sunt, ut poma illa in ipsas commutari opinarentur; sed falso; nam tempore adnatis ex vi maris primum vermibus, atque iis sensim excrescentibus, vicissimque pomis illis ex humiditate corruptis, disparentibusque, non satis accurate perspicientibus, ex illis in has transmutari formae visae sunt.'

78a. Supplemento delle Croniche del Reverendo Padre Frate Jacopo Filippo da Bergamo, etc., s.loc. 1539, bk. iv, fol. lvi (*verso*). In the first edition, Venice, 1483, the Myth is not mentioned in lib. iii, fol. 40, where the section dealing with Scotland occurs.

79. Polydore Vergil. This reference has defied identification in spite

of the most assiduous research among his various works. One writer has boldly appended the reference 'Historia rerum Britannicarum, lib. xxvii', but it is not there. Nor is it to be found in 'De rerum varietate' or in the 'Prodigiorum liber', or in 'De rerum inventoribus', nor in any other work of his so far as I can discover. It may be that some curious reader may be more fortunate than I.

80. Hieronymi Cardani Mediolanensis Medici de Rerum Varietate libri xvii, Basiliae, 1557, p. 207, cap. xxxvi. In this chapter 'Avium proprietates' he quotes practically the whole of Boethius: 'Hoc enim exemplo satis constare arbitror, non ex foliis aut truncis arborum hanc vim prodire, sed inesse semina haec Oceano quem Maro ut Homerus patrem rerum appellavit. . . Hactenus Boethius ut nimis magno supercilio Polydorus Vergilius pronuntiavit hanc videri sibi fabulosam, cum hujus scripta videre potuerit. Et si vidit, aut refellere muneris ejus fuerat, aut non tam secure de his pronuntiare.' Cardano opines that the story is not to be wondered at, for if mice (*fide* Aristotle), which are numbered among perfect animals, are generated from earth, why not hares and gnats from Egyptian earth (*glebam*), and birds from the Ocean of the Hebrides?

The reference to mice thus generated in Egypt is to his earlier work 'De subtilitate rerum' Libri xxi, Basle, 1551, lib. ix 'De Animalibus quae ex putredine generantur', where he discusses (*inter alia*) not only the Egyptian mice, but also silk-worms from leaves (cf. Aristotle de Historia Animalium, bk. v, ch. 19), and other worms from snow. He also deals with the locusts which, made into bread, were eaten by John the Baptist (!). But in the following section (lib. x), 'De perfectis Animalibus', we find the marginal notes 'Cur aves omnes ex ovis generantur' and 'Cur aves, cum sint animalia perfecta, ex ovis omnes generantur'. The Egyptian mice are referred to by Voigt in his 'Curiositates Physicae' (see note 227, *op. cit.*, p. 23), in 1668. Cardanus also opines that Boethius should have gone on to tell us more of the life-history of the bird (we agree with him!), 'Quomodo igitur, e verme mutato in avem, animal illud vivax esse potuit'—and he says in point (p. 210) that G. Pictorius had shown that they had both kidneys and a bladder. 'Verum Georgius Pictorius renes ac vesicam habere refert. Est autem miraculum miraculo augere.' I have not been able to verify this reference to Pictorius, but it is doubtless to be found in some one of his many medical tracts.

81. *Vide* note 74, 'en regard qu'il pouvoit veoir les escrits dudit Hector Boetius: lesquels s'il auoit leu, il deuoit, pour son deuoir, refuter ledit Boetius, ou non tant cruëment parler en l'aer de ces choses'—Duret's translation, 1605 (see note 160).
82. The statement as to his name I gather from Lee (*op. cit.* in note 84,

p. 109); he claimed to be descended from the Scaligers of Verona, and it was not until after his death that the enemies of his son exploded this romance and published the fact that he was the son of one Benedetto Bordone, a schoolmaster at Verona. One sees on the title-page of his son's 'Epistolae', published after his death (see note 168), that no illusion of the kind existed then.

83. J. C. Scaliger, 'Exoticarum Exercitationum' Liber xv, De Subtilitate; ad Hieronymum Cardanum. Paris, 1557, Exercit. 59, Sect. 2, p. 89. 'In Oceano Britannico magis mireris ignotam vobis avem, Anatis facie, rostro pendere de reliquis putridis naufragiorum quoad absolvatur atque abeat quaesitum sibi pisces, unde alatur. Hanc quoque vidimus nos. . . . Vascones Oceani accolae (see note 154) Crabrans vocant illas; a Britonibus Bernachiae appellantur: recepto etiam in proverbium vocabulo, cum ignaviam cuiuspiam exprobare volunt; quasi neque caro sit, neque piscis.'
84. H. Lee, 'Sea Fables Explained', London (second edition), 1884.
85. 'Julii Caesaris Scaligeri . . . in Libros de Plantis Aristoteli inscriptos commentarii,' Geneva (J. Crispin), 1566, p. 80, col. 2, c.d. 'Terminus hujusmodi progressionis naturae est rarior: veluti quae circumferuntur falso de Phoenice, vere autem de Britannici anatibus oceani, quas Aremorici partim Crabrans, partim Bernechias vocant. Eae creantur ex putridine naufragiorum, pendentque rostro a matrice, quoad absolutae decidunt in subjectas aquas, unde sibi statim victum quaerunt. Visendo interea spectaculo pensiles, motitantesque tum crura tum alas' (in the Paris 1556 edition, pp. 124-5).
86. Scaliger referred to the Myth also in his poem 'Ata' as follows:

Idem canoris cantibus canunt laetae
Quae pisculentis nidulantur in stagnis
Herbilis anser, atque anas quiritatrix,
Qui corpus urinantium colymbarum
Suo aemulantur corpore, at putris ligni
Ortum Crabranes, Santones recognoscunt.

I quote from the edition 'Poemata in duas partes divisa' (Heidelberg), 1574, pt. ii, p. 66. This gives us a new locality on the shores of Aquitaine; now Saintes in the Dept. of Charente-Inférieure.

87. Barth. Chassaneus, 'Catalogus Glorae Mundi' etc., Lyons, 1546, pt. xii, 57th Consideration, p. 291 (a). 'Scotia etiam insula est . . . In hac quippe insula constat natam fuisse aliquando arborem miraculosam seu prodigiosam, supra quandam fluminis ripam, quae fructus producebat ad anatarum avium similitudinem, etc. . . in aquis vero demersi, mox animati enatare incipiunt atque sub aquis et in aëra pennis volant.'
88. *Op. cit.*, p. 312 (a), 80th Consideration. 'Sed res tam multorum

virorum gravium testimonio (qui hoc viderunt) probata est, ut minime dubia existimari debeat.'

89. S. Münster, 'Cosmographia Universalis,' Basiliae, 1550, 1554, 1572, etc., bk. 2, p. 49 (1550). 'De Scotia'—'In Scotia inveniuntur arbores quae producunt fructum foliis conglomeratum: et is cum opportuno tempore decidit in subjectam aquam, reviviscit convertiturque in avem vivam, quam vocant anserem arboreum. Crescit et haec arbor in insula Pomonia, quae haud procul abest a Scotia versus aquilonem. Veteres quoque Cosmographi, praesertim Saxo Grammaticus, mentionem faciunt hujus arboris, ne putes esse figmentum a novis scriptoribus excogitatum.' Then follows the passage cited in note 66.
90. This is evidently suggested by the foliate external appearance of the barnacle shell, *vide ante*, Part I (Fig. 7).
91. W. Turner, 'Libellus de Re Herbaria,' etc., London, 1538, 4to; and 'A New Herball', London, 1551, fol.
92. 'Nidum Berniclae aut ovum nemo vidit—nec mirum, quum sine parentis opera Berniclae ad hunc modum spontaneam habeant generationem. Quum ad certum tempus malus navis in mari computruit aut tabulae aut antennae abiegnae; inde in principio veluti fungi erumpunt: in quibus temporis progressu manifestas avium figuras cernere licebit, deinde plumâ vestitas, postremo, vivas et volantes.'
93. W. Turner, 'Avium praecipuarum quarum apud Plinium et Aristotelem mentio est brevis et succincta historia.' Coloniae, 1543. Not paged, but the passage is to be found at Sig. B 4, verso. It is all repeated at length in Gesner (*op. cit.*, p. 107), and again in Schott (*op. cit.* in note 219, pp. 1141-2).
94. 'In Wallia (quae pars est Angliae) in Hibernia et Scotia aves istae adhuc rudes et implumes, in littore, sed non sine forma certa et propria avis, passim inveniuntur.'
95. 'Hoc tot tantaeque integritatis viri affirmaverunt ut credere audeam et alii credere suadeam.'
96. Olaus Magnus, 'Historia de Gentibus Septentrionalibus,' etc., Rome, 1555; book xix, cap. 9, p. 654. He records that near North Berwick (*prope Glegornum*) lies the Bass Rock, where Soland geese ('quas Sollendas vocat') congregate, that they arrive every spring and after flying round silently for two or three days they build their nests and stay all summer, flying away at the end of the autumn. He goes on: 'Praeterea alius Scotorum scriptor, qui diligentius rerum secreta pertractat, dicit in Orchardibus ex quodam fructu arboris cadente in mare generari anates; qui paululum susceptis alis evolant ad domesticas vel sylvestres.' It would be interesting to know upon what evidence he records that some of the geese fly away into woodlands, while others elect to become domestic geese on farms. The passage

is reproduced in its entirety in the epitome of the larger work: 'Historia de Gentibus Septentrionalibus . . . in Epitomen redacta', Antwerp, 1558, bk. xix, cap. 6 (*not* cap. 9), f. 153 v., which reference is attributed by Duret and others to Cornelius Scribonius Gryphaeus, who made the Epitome.

97. 'Gulielmi Rondeletii . . . Libri de Piscibus Marinis,' etc., Leyden, 1554. Pt. ii, 'Universae Aquatiliū Historiae pars altera', Leyden, 1555. 'De Testaceis, bk. i, cap. 29 (Lepas), and cap. 30 (Balanus). A translation to which I shall have occasion to refer (*infra*, note 99) appeared under the title 'Histoire entière des poissons', Lyon, 1558, pt. ii, ch. xxv, p. 21.
98. This vast work was published in five folio volumes, catalogued 'C. Gesneri . . . historia animalium. Lib. i, qui est de quadrupedibus viviparis . . . Lib. ii de quadrupedis oviparis. Lib. iii qui est de avium natura. Lib. iiiii qui est de piscium et aquatiliū animantium (Continentur in hoc volumine G. Rondeletii . . . et P. Belloni de aquatiliū singulis scripta). Lib. v qui est de serpentium natura.' Tiguri, 1551-1587.
99. He deals with the Myth in bk. iii, as I have recorded in note 283. In bk. iv, 'qui est de piscium et aquatiliū animantium natura, continentur in hoc volumine Gulielmi Rondeletii . . . et Petri Belloni . . . de aquatiliū singulis scripta' (Tiguri, 1558), on page 141 we find the whole of the sections dealing with Lepas and Balanus published by Rondelet in 1555, in a section headed 'De Balano, Rondeletius'. I have given the original references in note 97. In this two species are recorded, one (Lepas) which 'in Gallia et Britannia nostra poussepiez (later spelt *poulsepieds*) appellant', with the woodcut of Lepas, without stalks, on a rock (Fig. 15). This he describes fully, and tells us that after the juices have been washed away in water they are eaten with vinegar by women, and by men of delicate and fastidious taste who are addicted to 'Venus'—'Mulieres et delicatiores homines alia fastidientes cibaria hoc edulii genere delectantur, et qui Veneri dediti sunt. Elixantur in aqua, jus quod intus est fugitur, tum priore parte contorta et disrupta, caro extrahitur et ex aceto editur.' The French original (see note 97) renders the passage: 'Les femmes é homes delicats estans degoustés en mangent.' (There is no reference to its aphrodisiac properties.) 'On les fait bouillir dans l'eau, puis on les suce pour le just qui est dedans' (this is freedom in translation amounting to licence) 'et après en tordant on romp le premier bout pour manger la chair qui est dedans avec vinaigre.' This is precisely how they are eaten in the present day in Spain, where they are called 'percebes'. He also describes a 'Secunda specie parva' (Balanus), with a similar woodcut (Fig. 16) showing two or three long cirri to each shell.

This species, he tells us, is always fixed, and small, and is never eaten.

There is in these notes no reference to the Myth, which may account for the statement of some later writers that Rondelet (*nat.* 1507, *ob.* 1566) and Belon 'treated it with contempt' (but see p. 30).

100. 'Barliatae dictae Aves e ligno crescunt. Fertur enim, abiegnum lignum in aqua marina relictum, cum paulatim putruerit, humorem crassum emittere; quo densato parvae species avium formentur ad magnitudinem alaudarum; quae nuda primū, paulatim deinde plumis vestiantur, et rostro interim a ligno suspensae per mare fluent usque ad maturitatem, donec se commoventes abrumpantur, et ita demum ad justum incrementum perveniant et (ut Jacobus Athonensis (*sic*) Episcopus in Orientali Historia scribit) sicut aves caeterae avolare incipiant. Isidorus.' Schott adds: 'Ex Isidoro utique accepit sua Vincentius loco citato. Locum tamen hunc Isidori inveniri non potui inter ejus opera.' I have not been able to find anything about it in Isidore's *Etymologiae*. (See notes 45 and 101.)
101. It will be observed that 'Isidorus' is given in the heading to c. xiv of the 'Ortus Sanitatis' 1491 (see Fig. 12). Isidore of Seville (Hispanensis), *fl.* 600, *ob.* 636 (see Burgess, *op. cit.*, note 71, p. 177). There is no reference to the Myth in his 'Etymologiarum Libri xx' (First edition, Basle, 1577), edited by F. W. Otto in F. Lindemann's 'Corpus Grammaticorum Latinorum veterum', Leipzig, 1832, vol. iii. The Sections 'de Piscibus' and 'de Avibus' in the 'Originum sive Etymologiarum' do not mention the matter (see note 100). But Isidore is always given—as in the 'Ortus Sanitatis'—as the authority for 'Barliata'. Aldrovandus indeed in 1603 (*op. cit.* in note 155, p. 166) says: 'Isidorus Barliatam nominat, nisi forte lectio corrupta est.'
102. In the rare 'Icones animalium quadrupedum viviparorum oviparorum quae in historia animalium Conradi Gesneri describuntur', etc., Tiguri, 1553, we find at p. 82 two woodcuts with the legend: 'Anseres marini, quos Scoti Clakis appellant, quae ex putrescentibus in mari lignis nasci creduntur. Recentiores quidam Brantas et Berniclas appellant, ut Albertus et alii. In nonnullis codicibus scribuntur etiam Barliatae, Bernecae et Barbates, corruptis (ut conjicio) vocabulis.'
103. Pierre Belon was a French botanical traveller who visited the East in 1546-9, with a view to checking the observations of Anguillara on the plants of Dioscorides. *Nat.* 1517, *ob.* 1564. He is regarded as one of the earliest workers in comparative anatomy.
104. P. Belon, 'L'Histoire de la Nature des Oyseaux, etc.', Paris, 1555, bk. iii, ch. 5, p. 158.
105. Cf. the 'Pie Annet' of Gerard (note 144), which he appears to

use as a synonym for Magpie, but the style is so involved that he may have had the 'Oye Nonnette' in mind.

106. 'Hieroglyphica sive de sacris Aegyptorum literis commentarii Joannis Pierii Valeriani Bolzani, Bellunensis, Basilea', 1556, p. 192, lib. xxvi, 'De Ephemero'. 'in Britannis fluvius est . . . utrinque in ripae marginibus arbores sunt, quae folliculos ad ovi anserini magnitudinem ferunt: hi certo anni tempore in subjectam aquam decedentes, simul ac molliti fuerint, aperiuntur, deque singulis singulem exclusem aves abvolant, pipionibus paulo minores, candore insigni, alisque adeo plumatis, ut alte statim auferantur, neque quo migrent ulli adhuc compertum aiunt' (p. 249 in the edition of 1595).
107. A. Thevet, 'Les Singularitez de la France Antartique, etc.', Paris, 1558, ch. 26, fol. 50 verso. A translation was published by Thos. Hacket 'at his shop in Poule's Church', in black-letter in 1568, entitled 'The Newfound Worlde, or Antartike, etc.', where the passage occurs at p. 42.
108. 'The Third Volume of the Voyages of the English Nation, etc.', Coll. Hakluyt, London, 1600, p. 132: 'A letter written to Mr. R. Hakluyt . . . containing a report of the true state and commodities of Newfoundland by M. Anthoni Parkhurst, Gentleman, 1578'.
109. Ant. Mizaldus, 'Memorabilium utilium ac jucundorum, Centuriae novem', Paris, 1567, Cent. viii, par. 17, p. 108.
110. A. Thevet, 'Cosmographie Universelle', Paris, 1575, bk. xvi, cap. xi (vol. ii, p. 673).
111. Abraham Ortelius, 'Theatrum Orbis Terrarum', Antwerp, 1570.
112. *Ibidem*, Antwerp, 1579. The description ends: 'Descripsit hanc insulam Danielus Rogersius, carmine elegiaco, ad Thomam Rhedigerum.' I have not been able to identify these two persons.
113. The description in the edition of 1595 goes on from here: 'et accuratissime soluta oratione (*sic* for '*oratione*') Gulielmus Camdenus in sua Britannica (see note 120). Sed et Richardus Stanihurstius edidit nuper hujus insulae rerum gestarum peculiare volumen', and ends with a legend of St. Patrick 'ex Caesarij historia memorabilium, 12'.
114. 'The Theatre of the Whole World: set forth by that excellent Geographer Abraham Ortelius', London, 1606, p. 14.
115. 'Histoires prodigieuses extraictes de plusieurs fameux auteurs, etc.', Paris, 1571, vol. ii, p. 272.
116. 'admirables' is used in the sense of 'wonderful', which is so familiar in the letters of Mme de Sévigné, and other authors of the sixteenth and seventeenth centuries.
117. J. Leslie, 'De Origine moribus et rebus gestis Scotorum Libri decem . . . authore Joanne Leslaeo', Rome, 1578, p. 37. 'Equibus unus est mole caeteris multo minor, quem Claik dicimus, qui magnam

admirationem non exteris modo gentibus, sed et nobis etiam ipsis parit : nam non tam marinum quid, quam arborem Abietem sapore prae se fert, quare cum nidus illius et ova nusquam reperiantur, illum ex fructu arboris, modo in mare maturus decidat, enasci quidam sunt opinati. Alii non ex Abiete tantum, sed ex truncis aliarum arborum, apud Hebrides natarum, ubi vetustate fuerint consumptae, primum vermes atque inde tandem aviculas gigni arbitrantur . . . Ad haec anno millesimo quingentesimo sexagesimo sexto ad Serenissimam dominam nostram Mariam Scotorum Reginam, dum Strivilingi ageret, allatus est ramus cujusdam arboris, a quo quasi nativi fructus dependebant parvae quidem sed innumerae conchae (quos Mussilos dicunt) intra quas repertae sunt non pisces (rem miram) sed volatilia quaedam ejusmodi forsitan, qualia se vidisse testatur Boethius. Praeterea dum haec scriberem, intercepti mihi Romae consuetudo cum gravissimo viro Domino Gulielmo Alano Doctore Theologo Anglo qui ejusmodi avicularum formas in carinis veterum navium in occiduo Angliae littore apud Lancastriam saepe conspici testatur.'

118. 'Hexameron, ou six journées contenant plusieurs doctes discours . . . fait en Espagne par Antoine de Torquemada et mis en Français par Gabriel Chappuys, Tourangeau', Paris, 1583. Second Day, p. 86.

119. In connexion with this author there is to be noted a reference given by Duret (*op. cit.* in note 160, p. 307), who quotes a passage from one 'J. A. Vavasseur dit Guadaguigne' in his 'Carte de Geographie; 2de. Proem', which runs: 'Chi crederebbe che le frondi de alcuni arbore lignali cadeno nelle acque la quelle putrefundosi divengono uccelli pennati, e volino per l'aria come li altri uccelli e questi punsi ponno in Vinegia vedere apo Messer Andrea Rossi che de Scotia gli fece portare lignali; sono minore delle oche, e sono di Hispagnoli appellate Gravagne.' Duret's Vavasseur is evidently the Valuasor of Torquemada, and Andrea Rossi is André Rose (obviously Andrew Ross), but I can trace no work entitled 'Mapa Mundi' by the Venetian Vavassori who seems to be indicated. The reference is, to me, entirely obscure. The only light that I can discover on the subject comes from an isolated map in the British Museum, indexed under Vavassori, the title of which runs: 'Britanniae Insulaeque nunc Angliae et Scotiae regna continet cum Hibernia adjacente nova descriptio. Venetiis apud Ioannum Andream Valuasorem cognomine Guadagninum Anno Domini 1556.' There is a condensed description of Britain in a 'panel' on the map, which mentions iron, wool, tin, and lead, but there is no mention of the Barnacle Goose.

120. I have adopted Philemon Holland's translation (1610, par. Scotland, p. 204): that of Edmund Gibson (London, 1695, col. 1051)

differs unimportantly. The original runs (1594 edition, p. 684): 'Ipsi vero australi promontorio modica etiam insula (*The calfe of Man* vocant) praetenditur . . . anatibus illis e ligno putrefacto enatis, quas Angli *Bernacles*, Scoti *Clakes*, et *Soland Geese* vocant abundantissima.'

121. *Op. cit.*, p. 48. In Gibson's edition (1695), col. 941, where, after referring to Sir R. Sibbald's refutation (see note 237), he adds: 'A Discourse concerning the late worthy Sir Andrew Balfour, to be prefixt to the Catalogue of his Books, will in a short time give further light into it.' It is doubtful whether this Catalogue was ever printed. There is, in the British Museum, a Catalogue of the Books of the 'clarissimi fratres Balfourii, Jacobus de Kinnaird et Andreas', which were sold by auction in Edinburgh, 12th June 1669 (*sic*), but the Catalogue is *dated* at the foot of the title-page 1699, which is correct.
122. Edition of 1586. The first edition was dated 1577.
123. R. Dodoens, 'Histoire des Plantes', Antwerp, 1557. It was published in English, Antwerp, 1578, and in Latin, Antwerp (*Stirpium historiae pemptades sex*), 1583. This last was the edition hashed up to form the 'Herball' of Gerard (1597). (See p. 43 and notes 145 and 148.) The complete and last edition was published in Latin, Antwerp, 1644.
124. Clusius (C. de l'Ecluse, *nat.* 1526, *ob.* 1609, known as Carolus Clusius Atrebatensis, from Arras, his birthplace), 'Rariorum aliquot stirpium . . . historia', Antwerp (Plantin), 1576. In his 'Exoticarum Libri x', Antwerp (Plantin), 1605, he says (p. 368), referring to the Myth with a marginal note, 'Claik gees, Bernacles, Rod gees', that no one has dared to assert that he has *seen* the absolute living bird produced by the shells. The original runs: 'Vivam tamen et omnibus modis absolutam avem ex massa illa testacea evasisse aut prodiisse, nemo est inventus qui se vidisse asserere fuerit ausus.' He accepts the evidence of the Hollanders from Nova Zembla.
125. Jacobus Theodorus 'Tabernaemontanus', *Neuw Kreuterbuch mit . . . Figuren . . . aller Gewächss der Kreuter*, Frankfurt a/M., 2 vols., 1588-91.
126. After the description of the Barnacle shells he proceeds: 'cujus extremum fructuum ritu inserebatur latiusculae conchae basi, quasi vitam alimoniamque inde sugerent aviculae, quarum rudimenta e summa parte conchae hiulcae conspiciuntur. Pediculos istos ferunt Historici primum e vermiculis concreari, quod non potuimus scire, neque dum credere; tametsi scimus has easdem conchulas elegantissime efformatas in surculis arborum (*quales dono mihi dedit Londini superioribus annis industrius juvenis Andreas de Fourmestaux bonus civis et mercator Insulanus (added in 1576)*) qua maris aestus alluit temere projectorum aut depactorum sobolem esse. Earum autem quae

humi in sicco labuntur emori: quae vero alluvionibus maris rapiuntur, concha excludi, et in Anatem aut ei congenerem avem adolescere. Has volunt esse *Barnacles* Angli et Britanni Galli: *Clakis* vocat Scotia, ubi abundant et capiuntur dum per brumam concreverunt gelu paludes.'

127. 'Conchas vulgo Anatiferas non esse fructus terrestres, neque ex iis Anates oriri, sed Balani marinae speciem' (see note 139).
128. G. de Saluste du Bartas, 'La Semaine, ou Création du Monde', Paris, 1578: 'La première Semaine, 6^e jour'. This reference is always given, but the lines are not in the edition of 1578. They are added at the end of the sixth day in the small octavo edition 'Revue Corrigée et Augmentée par l'Authéur mesme, et embellie en divers passages', Paris, 1582, p. 102.
129. J. Sylvester, Du Bartas: 'His Divine Weekes and Workes, translated and dedicated to the King's most excellent Maiestie', London, 1584. The concluding lines of the 'Sixth Day of the First Week', p. 82 in the 'Chertsey Worthies Library' facsimile of the folio edition of 1641, London, 1880.
130. These lines, it will be remembered by anglers, are quoted by Izaak Walton in the 'Compleat Angler' (1653), on the 'Fourth Day', ch. v.
131. G. de Saluste Seigneur du Bartas, 'La Seconde Semaine, ou enfance du monde', Paris, 1584.
132. Graindorge (*q.v. post, op. cit.*, p. 25) observes here that 'Simon Oulard' (*sic* = Simon Goulart de Senlis) in his commentary has taken this to mean Scotland, but that it should be 'Ierna, Juverna, Overnia, Bernia, Hibernia'.
133. *Op. cit.* in note 129. 'First Day of the Second Week', p. 104.
134. 'La Seconde Sepmaine de Guillaume Saluste du Bartas, Annotations en marge et explications continuelles des principales difficultez du texte,' par S(imon) G(oulart) de S(enlis), La Rochelle, 1591, p. 98.
135. A learned Summary upon the famous Poeme of William of Saluste Lord of Bartas, Translated by T.L.D.M.P. (Thomas Lodge), London, 1621, p. 37.
136. J. B. della Porta, 'Phytognomonica', Frankfort, 1591; bk. ii, ch. 2, p. 44. Earlier in the chapter he cites several shell-fish 'tectis intacta, quae Graecis *ὄστρακόδεσμα* dicuntur', which are generated by putrid slime, and among them 'balani in the little cavities of the stones',—and also 'lepadés'. The whole chapter affords a bewildering catalogue of such 'spontaneous' productions.
137. G. Botero, 'Relationi Universali', Brescia, 1592 (other editions, Milan, 1598, and Brescia, 1599), bk. iii, 'Delle Isole', p. 495. 'Isole Hebridi.'—'In queste isole nascono certe oche, che

alcuni chiamono Bernache, in un modo meraviglioso. La piu parte de gli scrittori dice, che si generano da certi alberi, nati su la riva del mare. Perche cadendo i frutti loro (che hanno somiglianza con le pigne) in mare, divengono tra poco tempo uccelli: e si mangiano indifferentemente e di quaresima e di carnevale.'

138. Th. Lupton, 'A thousand Notable Things of sundry sortes', London, 1595, bk. vii, par. 3.

139. Fabius Colonna, 'Phytobasanos sive Plantarum aliquot historia', Naples, 1592, p. 14 in the terminal section: 'Piscium aliquot plantarumque novarum historia'.

'Dum conchas hasce, ex quibus Anates oriri falso asseritur, minime vidissem; atque apud Lobellium, Penam, quique eos secuuti sunt, conspicerem in maris rupibus arborem esse, quae fructus hos Amygdalae pares forma atque magnitudine ederet: mentem saepenumero cogitatio hujus rei perturbabat meam: neque credere poteram, etsi aliquando animum ad credendum inclinabam, ratione hac commotus: quia scripta haec erant a doctissimis duobus medicis atque demum ab aliis recepta: at quidem iterum rejiciebatur a sensu haec imaginatio fortiore argumento, quia arbor fructus edens depicta exhibebatur, atque ab iisdem medicis iidem fructus Concharum nomine donati erant, quas e navis annosae carina avulsas habere testantur: quae quidem inter se contraria atque impossibilia censentur. Arboris fructus terrestres, minime concha maris esse potest, atque si foret, navium carinis haerere haud posset. Qua sententia impulsus, conchas has videre animo flagrare coepi. . . Concha quidem est marina, ex maris spumoso coeno orta, ut aliae testaceae omnes, saxis, lignis, quibuscunque pumicibus humorem illum magis retinentibus adhaerens. . . Britannici ut Rondeletius asserit, appellant *Poussepiez*, et alii Pollicipedes, quorum superiores aliis longiores, curvi conspiciuntur, geniculati, interna parte hirsuti per longum divisam pennam aemulantes, et caudam curvam Galli, quamobrem opinati sunt illi pennas esse, atque caudam, et aviculae crescentis rudimenta extra concha emissa. Sed mihi potius cirros, et brachia animalis esse videntur, quae conchae natura tribuit, ut escam venari, et intro reponere posset. . . Ex his igitur testaceum animal esse certum erit, nec arboris fructus, ut ab aliis depingitur: hae quidem conchae in sicco dejectae brevi emoriuntur propter humidi diminutionem, in mari vero putrescere minime possunt, atque si ex putridine harum aliquid oriretur, marinum esse etiam oporteret dato et non concesso,' etc.

140. Joseph Hall, Bishop of Norwich, 'Virgidemiarum. Six Bookes', London, 1597, Bk. iv, Sat. 2, 'Arcades ambo' (p. 13).

S. W. Singer, the editor of the 1824 edition of Hall's 'Satires', observes in a note (on p. 88): 'Dr. Bullein, in his "Bulwarke of De-

fence", 1562, not only believes this (the Myth) himself, but bestows the epithets *ignorant* and *incredulous* on those who did not; and in the same breath maintains that crystal is nothing but ice! I have not traced this passage in W. Bullein's work.

141. Simonis Maioli 'Dies Caniculares', Rome, 1597, p. 252. 'Aves, Colloquium sextum, p. 264. *Eques*. Admirabilis est quod de Barliathe seu Berneca ave graves viri tradidere . . . primum sunt nudaе, deinde maturantes plumescunt, ac rostris ad lignum pendentes per mare fluitant usque ad maturitatem, donec se commoventes abrumpunt, sicque crescunt et roborentur usque ad debitam formam . . . *Theologus*. Verumtamen nisi decidentes cito aquas invenerint vivere non possunt; quoniam in aquis est nutrimentum earum et vita. Notandum autem quod non in ramorum summitatibus sed in arborum corticibus et stipitibus pendent; crescunt autem arboris humore; et roris infusione, donec habentes plumas, ac robur vitae corticibus abrumpuntur . . . *Eques*. Transeamus ab ijs volucris (si libet) quarum ignotior natura est, et fallere nos perfacile potest scribentium auctoritas.'
142. J. Bodin, *Universae Naturae Theatrum*, etc., Lugduni, 1596, p. 298. This edition is not divided into 'Sections'. I quote from the translation: 'Le Théâtre de la Nature Universelle, Traduit du Latin par M. Fr. de Fougerolles', Lyon, 1597, bk. iii, sect. iv, p. 424.
143. Ferrandi Imperati Neapolitani *Historiae Naturalis Libri* xxiix (*sic* = 28) Lipsiae, 1597, p. 896. Bk. xxviii, cap. i, 'Conchae pedatae'. An Italian translation was published in 1599, 'Dell' *Historia Naturale* . . . Libri xxviii,' Naples, M.D.I.C. (*sic* = 1599), see p. 772. Colonna (see p. 40) quotes from an earlier edition.
144. J. Gerard, 'The Herball or General Historie of Plantes', London, 1597.
145. The entire story of Gerard's proceedings, and how his work was made up, is given by Johnson in the edition of 1633: 'To the Reader', Sig. ¶¶¶ and verso.
146. 'The Herball or General Historie of Plantes Gathered by John Gerarde . . . very much Enlarged and Amended by Thomas Johnson', London, 1633.
147. Probably Peel Island, the Pile of Fouldrey ('la peele de Foddray' or the Pylle of Folder), see E. Baines, 'History of the County Palatine and Duchy of Lancaster', vol. ii, p. 651. London, 1870 and 1888 (Galton, *op. cit.* in note 61, p. 5).
148. 'Stirpium Adversaria nova, Authoribus Petro Peno et Matthia de Lobel', London, 1570 (on title; 1571 in colophon). Last leaf not paged. For an account of Gerard's procedure see also 'A Catalogue of Plants cultivated in the garden of John Gerard . . . edited . . .

by B. Daydon Jackson', (privately printed), 1876, p. xiii. Dr. Jackson remarks: 'The Herball contains upwards of eighteen hundred wood-cuts, of which not more than sixteen (according to Johnson, fourteen) appear to be original, although Sprengel (*Historia Rei Herbariae*, Amsterdam, 1807-8) gives a list of twenty-five, either original or peculiar, some being no improvement on the old figures.' Gerard's 'version' of the 'Barnakle Tree' was already figured as 'Arbore delle anitre', in the 'Figure aggiunte senza discorsi' at the end of C. Durante's 'Herbario', Venice, 1602 and 1636.

149. Compare the rock (or log) in this woodcut with that in the etching of Fabius Colonna (Fig. 19 and *op. cit.* in note 139).

150. M. de Lobel, 'Icones Stirpium', Antwerp (Plantin), 1591, vol. ii, p. 259. Matthias de l'Obel (or as above), *nat.* 1538, *ob.* 1616 in Highgate. He was a practising physician at Antwerp, and came to London in 1584, as court physician to William of Orange. Later he became 'Royal Botanographer' to James I.

151. The references to these Hollanders have become so confused that it is worth while to straighten them out. Most authorities give the date as 1599, others as 1596, whilst the usually accurate Schott gives 1569. The voyage in question took place in 1596. The authentic account is to be found in the '*Diarium Nauticum seu vera descriptio Trium Navigationum admirandarum . . . auctore Gerardo de Veer Amstelrodamense*', Amsterdam, 1598. The headings of the pages run: 'Navigationis ad Arcton Tertia Pars', which is given as the title of the book by Aldrovandus (in 1603), who gave a complete account of the matter. The date 1599 comes from the French edition: 'Trois navigations faites par les Hollandais au Septentrion par Gerard de Vera', Paris, 1599, where the account occurs at p. 112. Johnson in the 1633 edition of Gerard's 'Herball' gives a reference 'Vide Pontani Rerum et urb. Amstelodam. Hist. lib. 2, cap. 22'. I have not sought to verify or identify this reference. A Dutch edition of de Vera's work appeared contemporaneously, entitled 'Waerachtige Beschryvinghe van drie Seylagien ter werelt noyt soo breemt ghehoort, etc. . . . Gedaen deur Gerrit de Veer van Amstelredam', Amsterdam, 1598. The account is at page 18.

I take the account from the Latin edition of 1598, where, at pt. iii, p. 15, under date 21st June 1596, the matter is set forth as follows: 'Then rowing to the middle island we found there many eggs of the Barnacle (which the Dutch call *Rotgansen*) and found them sitting on their eggs, who as they flew away cried "Rot, Rot, Rot"' (from which cry they derive their name), and we killed one with a stone and cooked and ate it, and took away into our ship about sixty eggs. These geese, or Barnacles, were the genuine geese called

Rotgansen, which appear in great quantities in certain years round Wieringen in Holland and are caught, concerning whom hitherto it has been unknown where they lay their eggs and rear their chicks. From this circumstance all Authors have dared to write that they are born on trees in Scotland, from whose branches overhanging the water, if the fruit falls in the water goslings are born and immediately swim, whilst those that fall on land rot, and do not come to maturity. That this is untrue is now apparent. Nor is it remarkable that it was hitherto unknown where these ducks lay their eggs, since no one apparently has ever reached the latitude of 80° , nor was this region ever known, and much less those geese incubating their eggs.' A very free translation of this account was published under the title, 'The true and perfect Description of three Voyages so strange and wonderfull that the like hath never been heard of before', London, 1603—a thirty-line title with no author. Translated by Wm. Phillip without any mention of G. de Vera (or de Veer). The passage occurs in the 'Third Voyage Northward to the Kingdom of Cathaia and China in Anno 1596' (no pagination but the last page of Sig. G). The translator says: 'Those geese were of a perfitt red colour, such as come into Holland about Wieringen and every yeere are there taken in aboundance, but till this time it was never knowne where they hatcht their Egges, so that some have taken upon themselves to write that they sit upon trees in Scotland, that hang over the water, and such Egges as fall from them downe into the water become young geese and swimme there out of the Water, but those that fall upon the Land burst in sunder and are lost: but this is now found to be contrary, and it is not to be wondered at that no man could tell where they breed their Egges, for that no man that ever we knew had ever been under 80 degrees, nor that the Land under 80 degrees was never set downe in any Carde, much less the red Geese that breed therein.' At the same time it must not be forgotten that Albertus Magnus recorded in the thirteenth century the fact that he had seen these birds copulate and lay eggs, and this, as Gaspar Schott (*vide op. cit.* in note 219, p. 1152) says, 'not in those remote regions, but, as it would appear, in southern Germany' (cf. also P. Belon, *op. cit.* in note 104, and p. 30).

The most modern account of the voyage in question known to me is a poem by one D. van Pelt, 'The Hollanders in Nova Zembla' (New York, 1884), with an historical introduction which mentions the discovery (p. 28) of 'geese that were in the habit of visiting Holland every summer, but until now it had not been discovered where they laid and hatched their eggs'. The Myth is not otherwise mentioned.

152. M. del Rio, 'Disquisitionum Magicarum Libri Sex', Louvain,

1599. Bk. ii, Quaest. 14 : ' Sic possent Magi etiam producere quosdam anseres imperfectiores qui soliti gigni ex deciduis fructibus arborum in mari putrescentibus, vel sane ex lignis navigiorum putridorum, ut norunt contingere Scoti, et Hebridum incolae quibus vocantur Klakis et Bernicles ' (edition, Cologne, 1657, p. 188).
153. Baptistae Fulgosit Genuensis Factorum et Dictorum memorabilium Lib. ix, Coloniae Agrippae, 1604. Bk. i, cap. 6, fol. 56 (recto) : ' arbores salicibus persimiles nascuntur, in quibus ortae parvae quaedam pilae, paulatim crescendo aves anatum formam habentes effigiantur, rostro ab arboribus pendentes : et cum ad maturitatis tempus pervenere, sui ipsarum nixu arboribus excussae, in mare decidunt atque evolant.' 1st edn. 1509; others, 1518, 1541, etc.
154. P. Bertii Tabularum geographicarum contractuarum Libri iv., Amsterdam (1600), p. 73. ' Plura istiusmodi fabulatur Sylvester Gyraldus Cambrensis. Istud vero prae caeteris memorabile, ex lignis quibusdam in mare temere natantibus, gummi primum effluere : hoc gummi postea in crustam indurescere, intus nasci animalcula quae primum vitam, postea rostra, pennas, alas concipiant, denique vel in aere volitent vel aquis innatent, neque aliter generari hoc animal.' After his reference to Giraldus and Scaliger he continues : ' Vascones Oceani accolae vocant illas Crabrans, a Britonibus Bernachiae appellantur, recepto etiam in Proverbium vocabulo, quum ignaviam cuiuspiam exprobare volunt, quasi neque caro sit neque piscis . . . Ferunt etiam Sinu Codano volucres quasdam aquatiles solere ad maritimas arbusculas convolare, et ibi multa Venere expleri, semen undis exceptum in avis effigiem formari, potissimum ubi recessus littorum quietiores sunt.'
155. Ulysses Aldrovandus, ' Ornithologia ', Bologna, 1599-1603, 3 vols. Vol. iii (1603), lib. xix, p. 171.
156. (p. 166) ' Berniclas sive Brantas ait ex putridis navis, malis fungorum more nasci minime fabulosam esse, doctorum et honestorum virorum oculata fides mihi persuasit.'
157. Ullyssis Aldrovandi . . . De Mollibus Crustaceis, et Zoophytis. Bononiae (Bologna), 1606 (in Title; 1605 in Colophon), p. 543. Cap. lxxviii. It is desirable to add the original, which reads : ' De Concha Anatifera. Conchae anatiferae, seu potius Anseriferae ex arbore dependentis iconem in tertio nostro de avibus volumine exhibuimus, atque hic iterum exhibemus. Alii ut Matth. Lobelius in secunda parte iconum stirpium suarum non ex arbore dependentes pingunt sed trunco simul adherentes, quos etiam imitari voluimus, ne quid unquam in nostris desit lucubrationibus quod e lectorum re esse possit. Habes primo loco Concham Anatiferam tribus partibus constantem cum umbilico annexo. Altera item umbilicum habet adnexus, sed quinque partibus composita est. Tertia aperta est,

eique umbilicus inseritur. Quartae testa etiam quinque partibus constat, hiulca est ea parte qua primum plumulae prorumpunt. Quinta foetum intra valvas situm ostendit. Sexto loco exhibitur embrio seu foetus imperfectus e valvis exemptus. Septimo et novissimo loco datur Bernicla avis adulta, ex ejusmodi concha nata. De qua vide nostram ornithologiam. Habes postremo alias conchas Britannicae conchae similes et forte congeneres.'

158. 'Ornithologia' (1603), p. 173. On p. 166 he is responsible for the often-quoted statement that the male birds have sharp beaks, whilst those of the females are blunt like those of other ducks and geese.
159. Nich. Taurellus, 'De Rerum Aeternitate' etc., Marpurgi, 1604. Pt. iii, p. 552: Duplex plantarum et animalium procreatio, p. 557. 'Non quaevis putredo quaevis producit animalia; sed alii vermes ex ligno, alii ex caseo putrescente nascuntur. Alia murium, alia pulicum est procreatio. Admirandum est quod de anseribus refertur, qui ex arbore quadam in Hibernia procreantur. Ita etiam in nostratum arborum frondibus varii generis vermes generantur. Quales ergo res sunt putrescentes, tales earum est putredo, et pro hujusce differentii varia etiam nascuntur animalia.'
160. C. Duret, 'Histoire admirable des plantes et herbes esmerveilleables et miraculeuses en nature', Paris, 1605. Chapter xxvi, which occupies pp. 287-302, is entitled: 'Des arbres des Isles Hebrides, les troncs ou bois desquels cheuz dans la mer, et pourris par l'eau marine, se meuent et changent dans quelque temps en vers, puis en oyse, ou canes vivantes'. At p. 302 he reproduces Gerard's figure (1597), accentuating the emergent ducks. Ch. xxvii (pp. 304-16) is entitled: 'De certains autres Arbres les fruits et feuilles desquels se meuent et changent en poissons vivans dans lesdites eaux; et les feuilles cheutes sur terre se transforment en oyseaux volans'. These chapters contain a complete history of the Myth from all the previous authors known to Duret.
161. Pena having, by successful treatment of King Henry III of France, become a noted and successful physician, abandoned Botany and devoted himself to Medicine, and the next edition of this book is 'Stirpium Historia Matthiae de Lobel, Insulani, cui annexum est Adversarium volumen', Antwerp (Plantin), 1576; at p. 655 is a better print of the same cut.
162. This larger woodcut made its appearance (together with the small one) in the collection of Plates published by de Lobel in 1591, 'Icones Stirpium', Antwerp (Plantin), 1591, vol. ii, p. 259.
163. I cannot resist the temptation, before leaving Claude Duret, to record the phenomenon related by him in his next chapter (xxviii) 'Of a tree growing in the Island of Borneo, the leaves of which live

and walk'. His plate (Fig. 29) is delightful. The tree was discovered by a Knight of Rhodes, one Mark Antony Pigasetti, 'Vicentin' (sometimes called Pigaseta, see p. 53), who accompanied Fernando Magellan upon his voyage round the world in 1519. These leaves, resembling mulberry leaves, were provided with 'four short and pointed feet. When crushed they shed no blood, but when one of them was touched or handled it moved and fled.' M. Pigasetti avers that he kept one in a pan for eight days, and whenever he touched it, it ran round the pan, and he solemnly opines 'that it lived and subsisted upon no other nourishment or meat, excepting air'. The phenomenon was recorded by Julius Caesar Scaliger in his 112th Exercitation (see note 83), and would appear to be an early record of the leaf-insect.

164. W. Franzius, '*Historia Animalium sacra*,' etc., Witbergae, 1605, pt. ii, cap. vii, p. 348; 1612, p. 509; 1653, p. 279. 'Etsi autem aliqui derident hanc historiam, tamen non solum graves et fide digni auctores illam propugnant; verum etiam superioribus annis talis anser dicitur fuisse transmissus ad regem Polonorum . . . Nunquam igitur firmiter potui persuaderi anseres ex arboribus nasci. Tandem incidi in historiam navigationum Hollandicarum . . . Quod historicum testimonium omnibus gratissimum esse debet,' etc.

165. Johanni Pincieri, M.D. '*Aenigmatum liber tres, cum solutionibus*'. Witbergiae (Wittenberg), 1605.

'In his quoque aviculae exterioribus partibus suis ita absolutae, ut exacte discerni possent, delitescabant.' Pincieri provides us with one of the 'ghost references' to the Myth; G. de la Rouille, *Hist. Générale des Plantes*, bk. xii, c. 38. Gulielmus Rouillius was the editor and annotator of the '*Materia Medica*' of Dioscorides (1529-44). I have never been able to trace any reference to the Myth in this work.

166. Art. Scaliger, in '*Encyclopædia Britannica*'.

167. Mark Pattison wrote a remarkable review of J. Bernays' '*Life of Scaliger*' (Berlin, 1855), in the '*Quarterly Review*' (vol. 108, 1860); reprinted in his '*Essays*' (London, 1889, pp. 132-95). He had made many manuscript collections for a life of Scaliger, on a much more extensive scale, which he left unfinished (R.C.C. and J.E.S. in '*Encycl. Brit.*', eleventh edition).

168. Josephi Scaligeri Julii Caes. a Burdon F. *Epistolae*, etc. Leyden, 1627 (B. and A. Elzevir), bk. iv, Epist. 382, p. 727.

169. A. Libavius. '*De Universitate et Originibus rerum conditarum*,' etc., Frankfort a/M., 1610, bk. vi, p. 533. 'Ita anseres Britannici in mari quidem ex conchis et vermibus nascuntur: sed non ex praedominante aqua, verum terra quae aquis commista excellit. Hoc

modo consiliantur facile dissensiones. Ideo Moses omisit materiale corpus, Gen. i. 20, quia loquebatur de partibus mundi ad sensum, et creabantur aves communiter ex aquis, et terra, veruntamen sic ut terra in eis excelleret, unde et jubentur super terra volare et postea pronunciatur ex terra creatas esse . . .’ And after the remarkable life-history of the ‘Ortygometras’ he goes on: ‘et tantum translatione esse novas aut miraculosas, sed cum aequivoce alias fieri possint eo modo quo et anseres ex vermibus in oceano Britannico, Hybernico, Scotico: tunc divina potentia repente extitisse innumerabili multitudine . . . si sponte nascatur anseribus Britannicis, seu anatibus, et proinde hanc esse sententiam dictionis sacrae, qua a mari advectae ventis afferunt ortygometrae atque ita confirmari quoque eorum sensum qui aves ex aquis procreant. Quid miri, si putemus anates Scoticas spontaneas esse ortygometras aequivoca generatione prognatas? Utrumque genus infoecundum est, nec pariens ova nec excludens. Gesnerus refert nasci anates istas ex fungis putrescentium navium non alibi quam in Irlandia, Britannia, Schotthia in qua et arbores sint, in quibus fungus nascatur. . . . Quidam arborem hanc Orchadibus asseribunt. Verum Deus anates tales etiam ex rubro mari procreavit.’

The only other use of the word ‘Ortygometra’ known to me occurs in Ducange, where it is given as a synonym of Aucella: ‘*Ortygometra*, matrix Coturnicum. Apuleius lib. 9. Metamorph.’

170. H. Kornmann. *Templum Naturae Historicum*, etc., Darmstadt, 1611, p. 81. Pt. ii, Conclusio iii, sub ‘Anas’.
171. J. B. della Porta, ‘*Della Magia naturale*, Libri xx’, Naples, 1611, bk. ii, cap. 3, p. 61.
172. C. Hofmann, ‘*Variarum Lectionum Lib. vi*’, Leipzig, 1619. Bk. II, cap. 29. ὁ φύκος καὶ τὸ φυκίον (Seaweed), p. 91: ‘Quem admodum igitur, antequam fiant anates illae Scoticeque de quibus Gesnerus, Aldrovandus alii harum rerum scriptores, fit concha quam saepe in manibus habui: ita heic videtur fieri debere idem. Hoc amplius persuadet quod concha haec sit rubra seu sanguinea,’ etc.
173. C. Bauhin, ‘*PIINAE Theatri Botanici sive index in Theophrasti Dioscoridis, Plinii, etc. . . . opera*’, Basle, 1623, bk. xii, sect. vi, p. 513. The edition of 1671 is a word-for-word and page-for-page reprint, exhibiting merely minor typographical variations.
174. Francisci Ferdinandi de Cordova . . . Didascalica multiplex’, Lugduni, 1615, cap. vii, p. 96: ‘quemadmodum nostris temporibus patefactum est immane quoddam mendacium circa naturam aliarum avium, Bernestae, seu Bernechae dictarum . . . creditum vulgo est illas ex fructibus aut foliis quarundum arborum in mare decidentibus generari, usque ad 1596, in quo Hollandenses quidam circa novam Zemblam in aviculas has ova sua fovientes inciderunt, ut ipsi scripto

testati sunt. Caute itaque credenda haec quae a communi naturae usu longe abhorrent.'

175. Fortunatus Licetus, 'De spontaneo viventium ortu', Libri iv, Vicetiae, 1618, p. 237. Lib. iii, cap. xlvii: 'Animalia multiplicis naturae, ac speciatim aves e stirpibus ac ligni corruptis exoriri.' He says of his worms, 'aliis adhuc rudibus, aliis quaedam formata habentibus, partem etiam formatarum perfecte avium; inter quas quaedam plumas habebant, aliaeque implumes erant.'

176. 'Neque vero id adeo repugnat anatum naturae, ut spontaneam obtineant generationem.'

177. Bk. iv, cap. 55, p. 302: 'At vero neque ista nos terrent; tum quia possunt hae Magni Alberti et Gerardi aves illis esse consimiles, quas dudum novimus ex lignis oriri: non autem ejusdem omnino speciei ut hi supponunt.'

178. André du Chesne, 'Histoire d'Angleterre, d'Ecosse et d'Irlande', Paris, ? 1614, bk. I, p. 23. 'En la Mer qui coule autour, se forment et naissent certains oysons ou Canars dits Clakis, des branches d'arbres qui tombent et se pourrissent dedans les ondes: non pas comme estiment quelques-uns'—(whose names he gives)—'d'un fruit fait en façon de Cannes, lequel estant prest de mourir, chée de luymesme dans la mer, en laquelle il s'anime et reveste de plumes: mais d'une sorte de vers qui s'engendrent premièrement dans le bois et puis venans à produire une teste, des pieds et finalement des ailes, se couvrent entièrement de plumes, et s'envolent ainsi que les Oysons ou Canettes.'

179. B. Bonifacio, *Ludicra Historia*, etc., Venice, 1628 (I have used the Venice 1652 edition). Bk. ii, cap. 44, p. 80: 'Caeterum concha anatifera ut Britanni asseverant ex aquatilis cujusdam arboris foliis putrescentibus in ostreum convertitur, ex quo plumis contacta prodit anaticula quae aquâ natet, aere volet, tellure gradiatur.' He cites Aeneas Sylvius, and Odericus on the Scythian Lamb in point. The title of the book is misleading, it being quite a serious (?) scientific work.

180. M. Maierus, 'De Volucris Arborea': 'absque patre et matre in insulis Orcadum forma Anserculorum proveniente', Frankfort, 1619. Max Müller observes of this work that the author, who (*vide* Schott) was a Doctor of Medicine, but is described as an Alchemist in the Brit. Mus. Catalogue, indulges in some most absurd and blasphemous speculations, and cites the heading of the sixth chapter, which runs: 'Quod finis proprius hujus volucris generationis sit ut referat duplici suâ naturâ, vegetabili et animali, Christum, Deum et hominem, qui quoque sine patre et matre, ut ille, existit.' But the whole book is really very pious in tone, and purports to set forth a remarkable proof of the omnipotence of God. The Author seems

to realize that he has set himself a hard task, for he begins his third chapter, where Jonston (see note 181) takes him up, with a kind of apologia, the translation of which in the quaint language of Jonston's translator (see note 183) is worth preserving. He says: 'When we shall read that there is a place in the world where Geese grow on Trees like Apples, perchance he will be doubtfull concerning the truth of it, and question the Authour. And if any man shall say that living Creatures are bred, not onely of one but of divers kinds, from trees and vegetables, that part will fly and part will not fly, he will have enough to do to make good what he sayes if he would not be accounted a Lyar.'

181. Joh. Jonstoni *Thaumatographia naturalis* in decem classes distincta, etc., Amsterdam, 1632. Classis vi, cap. 7, p. 240: De Ave Bernichia. 'De ortu illius magna est inter doctos frequentia . . . crescit in Insula Pomonia in Scotia versus Aquilonem.'
182. Pomonia was the name given in neo-latinity to the mainland of the Orkneys, the seat of the episcopal see (cf. Graindorge, *op. cit.* in note 232, p. 21).
183. Johannes Jonstonus, 'An History of the Wonderful Things of Nature set forth in Ten severall Classes, etc.', London, 1657. Classis vi, ch. 7, p. 172.
184. Joannis Eusebii Nierembergii . . . *Historia Naturae*, etc., Antwerp, 1635. Bk. iii, cap. v: 'Plantae quae animalia gerunt', p. 32.
185. 'Quid mirum? nempe ut in terrâ mutantur plantae aliae in alias, ita supra terram gignant e seipsis animalia.'
186. From the Italian translation, 'La Divina Settimana tradotta di rime francesi in verso sciolto italiano', by Ferranti Guisone, Tours, 1592.
187. Odericus, or Odoric of Pordenone (de Porta Neonis) also called 'of Udine'; *f. c.* 1286-1331. The chief MS. of the account of his travels is in Paris (Bibl. Nat. MSS. Lat. 2584, fols. 118r-127v), and dates from about 1350. Sir J. Maundeville (see p. 19, and note 64) stole the substance of his voyages in India and Cathay from Odericus, including the account of the Scythian Lamb (see p. 106 and notes 179 and 284).
188. 'Et si hoc videatur incredibile, tamen, ut in Hiberniâ sunt arbores quae producunt aves, ita possunt vere ibi tales reperiri pepones.'
189. 'Subjunxerunt etiam in Regno Scotiae et Angliae arbores esse, quae producunt poma violacea, et rotunda ad instar curcubitae, a quibus maturis exit avis. Hoc magis credo quia id audiui a Magnatibus, et fide dignis, quam si propriis-meis oculis vidissem. Ita ergo ex plantis viventibus plurima nascuntur animalia.' A version of this passage from Odericus may be found in Latin (p. 51) and English

- (p. 63) in Richd. Hakluyt's 'Principall Navigations, Voiages, etc. of the English Nation, etc.', London, 1598, vol. ii (1599). 'There stand certain trees upon the shore of the *Irish* Sea, bearing fruit like unto a gourd, which at a certain time of the yeare doe fall into the water and become birds, called *Bernacles*, and this is most true.' Hakluyt's 'Voyage of Odericus' is taken from the 'Navigationi e Viaggi', edited by G. B. Ramusio, of which several editions were published between 1550 and 1583; and also from the 'Due viaggi del Beato Odorico', also edited by Ramusio, of which the first volume is dated 1563 and the second 1588.
190. D. Sennert, 'Hypomnemata Physica', Frankfort, 1636, p. 495. Cap. viii, 'De Animalium spontaneo ortu'.
191. 'Si quis vero miretur e conchis avem nasci, is cogitet creatori tam facile fuisse conchas facere, quae aves ferant, quam quae conchas, et perpendat quam multa alia miranda in rerum naturâ accidant' (*op. cit.*, pp. 506-7).
192. Sir T. Browne, 'Pseudodoxia Epidemica, or an Enquiry into Common or Vulgar Errors', London, 1646. In the 'Collected Works', London, 1686, p. 148.
193. J. Bauhin and J. H. Cherler, 'Historia plantarum universalis', 3 vols., Ebrodunum (Yverdon), 1650-1, vol. iii, bk. xxxix, cap. 79: 'Arbores conchiferae Ael (*sic?* vel) Anatiferae falso dictae, ut Telineae, ac Balani.'
194. 'Poems by J. C. with Additions. Printed in the Yeare 1651' (no place or publisher), p. 48.
195. N. Hookes, 'Amanda', London, 1653. In the 'Miscellanea Poetica' at the end, p. 146.
196. *The Memoirs of Ann Lady Fanshawe*, wife of the right Hon^{ble} Sir Richard Fanshawe, Bart. (1600-72). Reprinted from the original manuscript in the possession of Mr. Evelyn John Fanshawe of Parsloes, with 4 photogravure portraits and 29 other reproductions. London, 1907, p. 50 (1st edition, London, 1829).
197. W. Harvey, 'Exercitationes de Generatione Animalium . . . autore Gulielmo Harveo', London, 1651, p. 29. Exercit. x, (not xi): 'In Scotiae insulis orientalibus desertis, tanta omnis fere generis avium marinarum copia reperitur, ut, si quae a fide dignis accepi retulero; verear ne fabulas majores narrare videar, quam quas autores varii de anseribus Scoticis ex arborum quarundum fructibus (quos nunquam viderunt) in mare delabentibus prognatis tradiderunt. Quae ipsemet vidi, bona fide edisseram.' The translation in the text is taken from that published two years later under the title 'Anatomical Exercitations concerning the Generation of Living Creatures', London, 1653, p. 53, Exercit. xi (not x).
198. I. Cattier, 'Divers traictez, à sçavoir de la nature des bains de

- Bourbon . . . De la Macreuse, etc.', Paris, 1651, Sect. ii (separately paged): 'Premier Discours de la Macreuse.'
199. I. Walton, 'The Compleat Angler', London, 1653. 'The Fourth Day', ch. xiii.
200. Olaus Worm, *Museum Wormianum seu Historia rerum variorum*, etc., Lugd. Bat. Ex off. Elzeviriorum, 1655, pp. 256-7.
201. 'dum aperiuntur ostentant aviculae rudimenta et pennas satis discretas. Similes sunt iis quas Lobelius ad Tamesin quam Londinum praeterfluit, a navis annosae carinam avulsit . . . Imo a fide digno Gallo accepi, publicam Theologorum Sorbonistarum sententiam in piscium non autem avium classem relatas esse has aves.' This convenient Indulgence promulgated by the Theological Doctors of the Sorbonne is frequently referred to by the authors, but it seems to rest upon this statement of Wormius. The record of the debate which led to the pronouncement has been sought for in vain by more than one student of the Myth.
202. (J. Monipenny), 'The Abridgment or Summarie of the Scots Chronicles, etc.', Edinburgh, 1662, p. 289.
203. 'The First Anniversary of the Government under His Highness the Lord Protector'—first issued as an anonymous broadsheet in 1655, and mis-assigned to Edmund Waller in the 'State Poems', 1707, vol. iv, pp. 245-256.
204. 'Museum Tradescantium or a collection of rarities preserved at South Lambeth by John Tradescant', London, 1656. Tradescant was gardener to Lord Salisbury at Hatfield in the early years of the century, and his catalogues of Plants are among the classics of Botany and Horticulture.
205. A. Senguerdus, 'Physicae Exercitationes', Amsterdam, 1658, p. 174, Exercit. xlv, 'De Anseribus Scoticis': 'De harum avium ortu multi multa scripsere, abeuntes in sententias diversissimas. Una sententia est, in Insulis Orcadibus supra amnium ripas, arborem quandam fructus ferre anatibus similes, qui maturi, si in aquam adant, statim animentur et volucres fiant: si in terram, putrescant. Hujus sententiae refutationi non immoror, anseres enim non sunt mala aut pira, quae in et ex arboribus sensu destitutis crescant . . . Sunt qui velint, illas non ex sola substantia lignosa produci, sed ex alga (gramine Belgis *Wier* dicto) lignis illis una cum oleosa et picea substantia adhaerente procreari, ita ut materia illa prius mutetur in conchylas, quae progressu temporis accipiat alas, et ita in avem mutetur. Cui sententiae varii viri docti favent. Mihi ea opinione plane non probatur, cum ordini generationi rerum in natura constituto non conveniat, nec certis experimentis, sed relationibus tantum et conjectura nitatur. Rationi adversatur potius quam consensit. Magna enim differentia quae inter volatilia et aquatilia datur, non admittit ut

volatilia ex aquatilibus nascantur. Praeterea, volatilia cum sanguinea sint, sanguine nutriri debent, cum adhuc in ovis continentur, necdum exclusa Praeterea, mirum admodum est, nostros nautas, qui toties Hebridæ et Orcadas circumnavigant, nunquam anseres illos ex arboribus decedentes videre, si in illis crescant.'

206. Jas. Ware, 'De Hibernia et Antiquitatibus ejus Disquisitiones. Editio secunda', London, 1658, cap. xiv, p. 72. I quote from the translation 'The Antiquities and History of Ireland', London, 1705, ch. xiv, p. 34.
207. 'Antonii Deusingii. . . . Dissertatio de Mandragoræ pomis', Groningen, 1659, pp. 38-52. Also in his 'Fasciculus Dissertationum selectorum, etc.', Groningen, 1660, pp. 602-616: 'De Anseribus Scoticis'.
208. Th. Bartholini Historiarum Anatomicarum, etc. Centuria v et vi. Hafniae, 1661. Hist. xlv, p. 271.
209. This Plate, remarkable for its age, gives us Fig. 1, A dissection of the animal. (d) Whole shells showing the cirri. (e) A cirrus alone, hardly inferior to our Fig. 10. Bartholinus's Fig. 2 shows a normal bunch of *Lepas anatifera*.
210. G. F. Rall, 'De Generatione Animalium, disquisitio medico-physica,' etc., Stettin, n.d. (the Dedication is dated 1669), p. 59, Sectio ii: 'Exponens statum controversiae quam Janus Orchemus Harveo et Deusingio circa conceptionis et formationis doctrinam movet, horumque argumenta adducens.'
211. J. Childrey, 'Britannia Baconica: or the natural Rarities of England, Scotland and Wales', London, 1660, p. 175. The passage is generally quoted from the French translation 'Singulartez naturelles de l'Angleterre', Paris, 1667, p. 298.
212. Sir Robert Moray seems to have been fond of marvels. In Dr. Birch's 'History of the Royal Society' (vol. ii, p. 41) we find the following entry relative to a meeting of the Society held April 26th, 1665: 'Sir Robert Moray affirmed that he had known a man who could take in two or three pipes of tobacco into his stomach before he let out any smoke, and then let it out afterwards all together. This was seconded (*sc.* 'capped') by Mr. Evelyn, who remarked that he had seen a person who after taking tobacco would discourse a while before he let out the smoke' (Lee, *op. cit.* in note 84, p. 121).
213. Dr. Tancred Robinson, 'Some observations on the French Macreuse, and the Scotch Barnacle', Phil. Trans. Roy. Soc., vol. xv, 1685, no. 172, p. 1036. He refers briefly to the various versions of the Myth, stating that 'the French eat it upon Fish-days, and all Lent, thinking it to be a sort of Fish or a Marine Animal with cold blood, or else a Barnacle generated either out of rotten or corrupted wood etc. . . . whereas the Barnacle (as also the Macreuse itself) is

Oviparous and of the Goos-kind; and the shells themselves contain a testaceous animal of their own species as the Oyster, Cockle, and Muscle doth.' He reviews the writers on the subject both pro and con from Giraldus Cambrensis, who, with Boethius and Turner, 'lead Gesner into error', down to Sir R. Moray.

214. Francisci Willughbeii . . . Ornithologiae libri tres . . . totum opus recognovit, digessit, supplevit Joannes Raius', London (Roy. Soc.), 1676, bk. iii, cap. 2, § 3, pp. 274-5. He contributed a letter 'Concerning the French Macreuse' to the Phil. Trans., vol. xv, no. 172, pp. 1041-4 (see page 102).
215. 'In toto sci. avium genere (excepta Phoenice, cujus origo quae fertur fabulosa est) aequivocae aut spontaneae generationis exemplum non datur. In aliis quidem animalibus minora et imperfectiora, ut V.G. insecta pleraque et in quadrupedibus ranae, vel sponte interdum vel ex seminibus et principiis alienis oriri vulgo creditum est. At animalia majora et in suo genere perfecta, qualia sunt in volucris Anseres, hoc modo produci, nemo unquam Philosophus admisit.'
216. Andrea Chiocco, Musaeum Francisci Calceolari Jun. Veronensis, etc., Verona, 1622, sect. i, p. 25: 'Et a re fortasse fabulosa, falsique; suspecta, a vero tamen non aliena ut naturae miraculum, exordiri placet: a Conchis nimirum illis quae Anatiferae a scriptoribus nuncupantur . . . sed veram oculata fide nuperrime mihi significasset Cl. Vir. D. Pancratius Mazzanghius Barghaeus . . . inter nos fuere colloquia philosophica et medica: incidit tandem sermo in hasce Aves.' Then follows the description of the branch preserved at Pisa, and after a long excerpt from Scaliger, he goes on: 'sed ad Conchas Anatiferas rursus, ut aliquid etiam moralitatis ex iis exsugere liceat . . . Concha haec homo ipse est qui et si ne superbiat, dictante S. Bernardo, in membro illo generationis principia suscipere admoneatur, quod sub se rectum intestinum deiciendis ab electione consilioque foecibus a natura destinatum supra autem vesicae collum continet, cujus proprium munus est (ut Galeno placet) susceptam urinam statuo tempore continere ac inde excernere. Nihilominus medio potentiae illius, quae ei dat esse, ex arbore vitae Concha lucidissima fit, ex qua summum praepotensque, bonum excluditur: per mare namque tribulationum mundarum expansis facultatum animalium alis Jobice volitans, computationibus, et crapulis clauso ore, concupiscibili, irascibiliq; deposita, ac spreta, fortitudinis pedibus annixus, ac tandem divinae gratiae plumis indutus, Avis Deo uno et trino gratissima, evadit, coelestique illo cibo consolatur, quo Beatorum animae in Coelis gaudent.'
217. J. Jonston, 'Dendrographias sive Historiae naturalis de Arboribus, etc.', Frankfurt a/M., 1662, lib. x, cap. iv, par. xxv, p. 471: 'Arbor in Orcadibus et Hybridibus insulis anatifera, quae triplex apud

Authores occurrit. Ex *unius* ligni putridine vermes, et ex his Anates viventes et volantes gigni creduntur. Ex *alterius* fructibus conopini similibus, foliis involutis, anates immediate quibus etiam in quadragesimum uti licet. *Tertia* folia si decidant super terram in aves volantes, si in aquam in pisces mutari putantur, pingitque figuram Duretus.'

218. 'Simile quid in China sub Vuting ad lacum Hanaio accidit. Folia cujusdam arboris in nigras mutantur aves.'

This is so strikingly analogous a Myth, apparently the Chinese version of the Barnacle-Goose-Tree, that it is worth recording by way of note. Martinus, in 1655, in his 'Novus Atlas Sinensis a Martino Martinio' (the dedication is dated Amsterdam, 1655), Landtschaft VI, Suchuen. Statt I (Hauptstat) Ching-tu, p. 70, says: 'A singular and pleasant thing is to be seen in this place, namely a little bird which the Chinese call Tunghoa-fung . . . it grows out of the flower Tunghoa, from which it takes its name, as its mother (the flower) is so called, and which it resembles and lives no longer than the flower remains on the tree, so that people hold it to be a living and hovering bird.' This description seems to indicate one of the humming-birds. The account is repeated by Athanasius Kircher in his 'La Chine illustrée, etc.', Amsterdam, 1670, pt. iv, ch. 8, p. 266, par. 4, as follows: 'It is said that the Province of Suchuen produces a plant called Tunchou from which is born a bird called Tunchou-sung.' It only lives as long as the flower which gave it birth, is very beautiful, and looks when flying like the flower itself. Kircher queries whether it be really a flower or an insect, but leaves the decision to others—'c'est ce que je ne dirai pas (laissant en cela la liberté à un chacun d'en douter)'. He refers to the doubts he formerly expressed in his 'Monde Souterrain' (see note 228) and concludes that the creature must be born from little eggs, no bigger than peas, that niche in the leaves and flowers of the plant, and that it gets its resemblance to the flower from pre-natal influences, as the mother must be constantly looking at the flowers whilst hatching her eggs—the Spear of Seleucus indeed! He adds casually, 'Nous avons mille expériences de cecy en Europe.' And a little later (p. 268) he gives us another analogue which was referred to by Redi (see note 252), and is well worth recording. 'Il y a un animal dans la Province de Quantung qu'on appelle Hoancio Yu, c'est à dire poisson jaune, lequel se change tantost en poisson et tantost en oyseau; en esté il devient un oyseau (dont le plumage est jaune) lequel vole par les montagnes pour y chercher sa nourriture comme les autres oyseaux; mais quand l'automne a fini, il quitte ces lieux eslevés pour revenir à la mer d'où il est sorti pour s'y changer en poisson, y chasser le reste de l'hiver, etc.' On p. 269, after describing

- a wolf which by dint of much swimming becomes transformed into a fish, he returns to explain his 'Poisson jaune', which he says is 'du nombre des amphibies, et qu'il participe aux deux natures d'animal aquatique et terrestre'. He accounts for the matter by explaining that (a) there are birds which nest among the rocks, (b) yellow fish live there in the pools, (c) the birds' eggs are dislodged and broken by tempests, (d) the fish eat them, (e) in the spring the 'semence' of the eggs works in the fish, produces wings, and turns its scales into feathers. In autumn the force of this 'semence' is worked out, the primary nature of the fish regains its power, and strips the bird of its feathers, it once more grows fins and scales and returns to the water, and then Kircher returns for a parallel to our Myth. 'Vous voyez par expérience que les canards d'Ecosse ne varient que de la façon,' referring again to his 'Monde Souterrain'.
219. G. Schott, 'Physica Curiosa, sive Mirabilia Naturae et Artis', Herbigoli, 1662, lib. 9, cap. xxii, pp. 1136-1158.
220. 'Concedo etiam, in conchulis supradictis reperiri vermes aviformes, qui paulatim crescant et avolent, cum id tam multi et oculati testes asserant. Nego tamen aves Britannicas de quibus hic sermo est, inde habere ortum suum; quoniam nullus supra citatorum Scriptorum id vidit, nec ullius alterius oculati testis attestatio adest, sed omnes meris conjecturis agunt, vulgo opinione adducti, ut ex verbis ipsorum constat. Nullum etiam experimentum hactenus docuit, animalcula exigua ex putrida materia generata, excrescere in animalia tam grandia ac perfecta qualia sunt Britannicae aves de quibus agitur.'
221. Schott gives the date as 1569, quoting from Ferd. de Cordoba, which is an error or misprint (see note 151).
222. 'Constat tandem, mereri optime de tota Republica Litteraria illos, qui similium exoticarum narrationum veritatem studiosius indagant; quod de his Avibus, ac praeterea de Phoenice, Pelicano, Unicornu, Lapide Bezoar, Behemoth, Basilico, Dracone, aliisque.'
223. Lucas de Linda, 'Descriptio Orbis et omnium ejus rerum publicarum,' etc., Amsterdam, 1665, bk. ii, p. 182: 'Hibernia. Aves ex lignis vel arboribus generantur ut et in Scotia *Bernickles* vocant.'
224. P. J. Sachse à Lowenheim ΓΑΜΜΑΡΟΛΟΓΙΑ sive Gamma-rorum vulgo Cancrorum consideratio, etc., Frankfort and Leipzig, 1665, cap. iv, par. 2: 'Quare et Bernacles Aves sive Anseres Scotiae (de quibus infra plura) in mari prognatas, quod cum carnem non habere videantur, nec ex carnibus productae sint, Parisiis loco piscium tempore quadragesimali vendi et comedi ex publica Theologorum Sorbonistarum sententia, author est Olaus Wormius' . . . (p. 103) 'An vero ex conchis quoque Anates Scotorum pronascantur, ut quidam propter rudimenta pennarum inventa opinantes, res sane

altioris indaginis et multa fatigavit ingenia praeclarissima . . . Magis veritati consentaneum est, Avis instar prodire ex ovis, instar arborum pomorum, natantibus vi ventorum ad Arborum ramos aquis sese immergentes appulsis adhaerentibus, ibique exclusis pari ratione ut in Insula Madagascar Joh. Albert Mandelsloo ostrea in arboribus invenit, quod dum aestibus marinis et affluxu, aquis arbores interdum operiantur.' The book is cited by Guettard as 'Gammardhon'.

225. Honorati Fabri . . . Tractatus duo quorum prior est . . . de generatione animalium, etc., Paris, 1666, bk. v, propositio lxxii, p. 190: 'Quae insunt etiam lignis aridis, putridis, excrementisque lignorum. Quod spectat ad anseres Scoticos, falsum est nasci in arboribus. Sed nonnulli per incubationem veram ex ovis, alii ex putridine, vel ligni, vel maris, ut conchae quae supponunt etiam aliquod primordium, vel in alga, atque alio simili vegetante, vel in aliquo animalium excremento, nempe in insulis illis Scotiae orientalibus infinita propemodum omnis generis avium marinarum est copia.' And he refers the reader to the arguments of Harvey (see note 197) and Sennert (see note 190).
226. M. H. Kipping, 'Institutiones Philosophicae Naturalis Libri x', Bremen and Frankfort, 1670. Bk. vii, cap. xii, p. 315, par. 4: 'Sunt etiam plantae et arbores de quibus vulgo creditur, quod procreent animalia viva. Anserum aquaticorum genus aliquod in Scotia, etc. . . . nec non in Anglia ad Tamesin, arboribus in ripa enatis, ut ramis pertingant, ad aquarum superficiem unde folia decidant, adhaerere conchas minutulas, rotundas, extrinsecus albas, quae ad maturitatem perductae, generant ex se aviculas, atque istae porro innatando acqui-
victum acquirunt. De arboribus in provincia Suchuen ad locum quendam consitis refert Martinus Martini in Atlante Sinico quod proferant flores quique temporis successu in aves mutantur. Verum qui facile credit, facile decipitur. In locis peregrinis fabulas multas intra vera aliqua dubiis relationibus misceri, novum haud est.'
227. G. Voigtii Deliciani Deliciae Physicae, Rostochii, 1671, cap. vi, p. 208, De Piscibus Volatilibus. Nor is there any reference to be found in his *Curiositates Physicae*, Gustrovi, 1668.
228. Athanasi Kircheri . . . Mundus Subterraneus, Amsterdam, 1678, bk. viii, cap. ii, p. 102: 'Hoc pacto Berniclae in Scotia vicinisque locis nascuntur. Nam ova in mari glaciali ab anatibus et anseribus innumerabili multitudine, uti Batavi in sua ad Arcton Navigatione memorant, deposita, soluta glacie rupta, semen eorum maris agitatione in vicina Orcadum et Hebridum littora pulsum, ibique mucori navium adhaerens tandem insita quadam climatis proprietate ex praesupposita seminis materia in anatem aut anserem animantur, ad quos producendos vel minima seminis portio sufficit.'

229. 'Barnaces, Hibernis, aves sunt aucis silvestribus similes, de lignis abietinis quasi contra naturam productae, quibus viri religiosi tempore jejuniorum vescuntur, eo quod de coitu vel de carne minime procreantur. Brompton, pag. 1072.'
230. It is to Ducange himself that one must look for the meaning of the word *aucis* from *auca*=a goose, in neo-latinity, clearly related to the Italian *oca*, and suggesting (?) the Auk. It is obvious that Ducange took his definition from Giraldus Cambrensis (see note 40).
231. 'Reliqua Librorum Friderici II. De arte venandi cum avibus', Augustae Vindelicorum (Augsburg), 1596, an early work on hawking. See pp. 22, 45, and 48. There is no mention of the Myth.
232. 'Traité de l'Origine des Macreuses par feu M. de Graindorge . . . et mis en lumière par M. Thomas Malouin', Caen (J. Poisson), 1680. The only copy of this work known to me is that in the British Museum, in which the title-page has been replaced in MS. in a contemporary hand. But it was evidently a well-known book, and was quoted by Dr. Tancred Robinson in 1685 (see note 213), and by many subsequent writers. Indeed, in such esteem was it held that a hundred years later it was reprinted (with another small work) under the title 'Traités très rares concernant l'Histoire Naturelle et les Arts', Paris (Saugrain and Lamy), 1780. At Sig. Aiii appears the Title as in the 1680 edition, with the imprint 'Sur l'imprimé de M.DC.LXXX à Caen chez Jean Poisson'. In the publisher's preface the contents of the volume are described as 'deux petites Dissertations qui sont devenues très rares; à peine peut-on se les procurer dans les ventes pour deux louis'. There would appear to have been two issues of the 1680 edition, for in vol. viii of the 'Journal des Sçavans de l'An M.DC.LXXX par le S.A.D.L.R. (Sieur Abbé de la Roque), Amsterdam, P. le Grand' (*i.e.* Dan. Elzevir or Wolfgang), 1682, at p. 115 under the date '8 avril 1680' there appears a review of the work, giving the title in full (as above) but with the imprint 'A Caen et se trouve à Paris chez Ant. Dezallier et Jean Casson, 1680'. The book must have appeared very early in the year; the reviewer agrees that Graindorge's arguments are sound. 'C'est ce que cet Auteur établit, après avoir réfuté tout le reste.' The vicissitudes of the 'Journal des Sçavans' up to and after the publication of vol. vii are set forth in A. Willems, Les Elzevier, Brussels, 1880, p. 362. G. Berghman in his 'Supplément à l'ouvrage sur les Elzevier', Stockholm, 1897, p. 33, states that vol. viii bore the imprint 'Jouxte la copie impr. à Paris, Se vend à Bruxelles chez Eug. H. Fricx . . . 1681', and that vols. ix to xii bore the Pierre le Grand imprint. But the copy of

- vol. viii in the British Museum is as set out above. The reprints of the early volumes are a bibliographical study by themselves.
233. At the same time it must be observed that this author appears to have been unidentifiable unless, indeed, he be the 'Isidore' of the 'Ortus Sanitatis' (see Fig. 12, p. 20). He was referred to by Aldrovandus in 1603 (*op. cit.*, note 155, p. 174) as follows: 'Obscurus quidam eam superfluitate carere dicit, sed an velit carnes ejus excrementias non esse, an potius aliquid aliud, non satis patet.' This concludes his section on the Barnacle-geese. I think it is not improbable that, regard being had to the obscurity surrounding the 'authority' of St. Isidore (see note 101), the 'obscure author' of Aldrovandus and the anonymous author of Graindorge are no other than this elusive saint.
234. J. C. Becmann, 'Historia Orbis Terrarum geographica et civilis', Frankfurt a/O., 1680. Cap. v, par. 6, p. 124: 'Singulare hic quoque Anatum sive Anserum istud genus Bernacles . . . quod ex conchis, arboribus etc. nasci communiter perhibetur. Historia satis nota, sed in qua notandum est. . . sicque ubicumque ovorum spermaticus humor convenientem matricem invenit in rimosis corticibus camporum foliorumque cavitatibus, conchis, etc. ex dispositione aeris interni externique foveri et ex perfectae volucris semine perfectam volucrem sensim formari. Sed an semen perfecti animalis extra aevum genitale suum, tamdiu, quam quidem hic requireretur, integrum et viviscum conservari possit, merito ambigitur nec Experimentia hactenus constitit.'
235. P. Bonnanno, 'Recreatione dell' Occhio e della Mente nell' Osservation' delle Chioccioline', Rome, 1681, p. 149, pt. ii, Classe 2. A better-known Latin translation is 'Recreatio mentis et oculi in Observatione Animalium Testaceorum', Rome, 1684, p. 95.
236. These are extracts from the Transactions of the Philosophical Society of Oxford (1683-1690) which have been published (1925) by Dr. R. T. Gunther of Magdalen College, under the title 'Early Science at Oxford'.
237. Sir R. Sibbald, 'Scotia Illustrata sive Prodomus Historiae Naturalis', Edinburgh, 1684, pt. ii, lib. iii, pp. 21 and 28.
238. *Op. cit.*, p. 598 (ed. 1885).
239. We find this 'indulgence' recorded as a matter of course in France in 1845 by Alphonse Karr in his 'Voyage autour de mon Jardin' (Letter 39), where he says: 'L'invention du lilas pour deuil est une invention analogue à celle de la sarcelle, de la macreuse, et de la poule d'eau comme nourriture maigre de carême; c'est un de ces nombreux accommodements qui se font tous les jours avec le ciel comme avec les douleurs légales.'
240. D. Hartnac, Curiosa Naturae seu Admiranda Physica, etc.,

- Frankfort and Leipzig, 1685. Bk. vii, cap. vii, p. 524: 'Quaestio ii. An in Scotia anseres nascuntur in arboribus. Responsio. Id vulgo creditur. At simplex nimis, anseres ex lignis pomis aut aquis nasci qui putat.'
241. 'Discursus Historico-Physicus de Avis Britannicae Vulgo Anseris Arborei Ortu et Generatione etc. . . . Praeses Georgius Funcius . . . respondens Godefredus Schmidt', Regiomonti, 1689, 6 ll. (not paged).
242. De generatione Animalium, bk. ii, cap. i.
243. Ut-ut enim facile concedamus, ex lignis putrescentibus nasci in aquis vermes, quod ipsum etiam non obscure de Scotia solum sed et de aliis bene multis Regionibus testatur Schottus, negamus tamen, vermes illos avem esse quam Scoti Clakis appellant, et de qua in praesenti nobis est sermo.'
244. E. Happel, 'Mundi mirabilis tripartiti, oder Wunderbaren Welt, etc.', Ulm, 1687-9, pt. (vol.) iii, bk. i, cap. 12: 'Zumahl wann die erfordernten Umstände darzu kommen, und alles gebührlich von der Natur dazu disponirt wird. Ich gebe es wol zu dass in den Nordischen Gegenden viel Tausend solcher Roth-Gänse gefunden werden, welche sich ordentlich betreten, und also vermehren, aber das hebet vorgemelten Ursprung derselben in Schottland noch nicht auf. . . dannenhero lasse ich die Roth-ganss fliehen, und sehe mich nach etwas anders um.'
245. Ericus à Moinichen, 'Conchae Anatiferae Vindicatae, sive Dissertatio de Generatione et vita Concharum Anatiferarum,' etc., Hafniae, 12th June 1697, 8 ll. (not paged); l. 2 (v.) 'In mari septentrionali inter alia Zoophyta conchae etiam anatiferae se nobis offerunt, quas videre mihi licuit adhaerentes lignis mari agitatiss.' His conclusion reads: 'Unde demum concludimus, pisciculos esse testaceos, conchis munitos reliquorum more testaceorum, nec dari ullam (quoad universalia testaceorum) hujus pisciculi testacei in vitae vel ortu vel progressu vel denique egressu a mytilis et reliquis id genus testaceis differentiam: his itaque hac vice ratiociniis ex experimentis praemunitis, sententiae nostrae tenaces magis quam morosi inhaeremus.'
246. O. Jacobaeus, 'Museum Regium seu Catalogus Rerum tam naturalium quam artificialium quae in Basilica Bibliothecae . . . Christiani Quinti . . . asservantur', Hafniae, 1699, p. 21. 'Conchae anatiferae, vulgo Bernacles Anglis'—'Tam in Anglia et Scotia quam in Norvegia frequenter reperiuntur, sed veras inde prodire anates pro commento sagaciores hodierni habent.'
247. 'et plures alii innumeri ad sententias discrepantes et conjecturas varias ambigui'.
248. Olaus Romer was, at once, a mathematician and a clock-maker

- and wrote several works upon these subjects, none of which would appear to be likely to contain any reference to Barnacles, so it is to be presumed that he was merely a personal friend of Jacobaeus.
249. P. le Lorrain de Vallemont. 'Curiositez de la Nature et de l'Art sur la Végétation, etc.', par M. l'Abbé de Vallemont, Paris and Brussels, 1708, pp. 414-435. Ch. xv, 'La Plante Anatifère. Végétation Marine'.
250. P. Hecquet, 'Traité des Dispenses du Carême, etc.', 1st edition, Paris, 1709 (1 vol.), p. 156, ch. xxiii; 2nd edition, Paris, 1710, vol. i, p. 259, ch. xxii: 'Des Amphibies'.
251. He quotes Deuteronomy ch. xiv, v. 15, where the Sea-mew (*Larus*) is declared unclean in the Revised Version.
252. Opere di Francesco Redi . . . etc., Venice, 1712, 5 vols. In vol. ii (all the 'Opere' are paged independently), 'Esperienze intorno a diverse cose naturali, etc.', p. 108.
253. He continues: 'Therefore I will never be such a dupe as to believe that in the China seas they catch certain scaled fish which are saffron-coloured and live in the water all the winter, but as soon as spring arrives shed their scales, clothe themselves with feathers (*penna e piuma*), and spreading their wings fly to the wood-clad mountains, and at the end of autumn, turning again to glide into the water, resume their original shape of fishes.' This, as I have pointed out, is evidently a related version of the Myth. In the better-known 1742 Naples edition of the works of Redi the passage occurs on p. 72. See the original account of this in note 218.
254. 'Plantae per Galliam, Hispaniam etc. . . . observatae a R. P. Jacobo Barreliero . . . accurate Antonio de Jussieu', Paris, 1714, p. 134: 'et rotundam basi in acutum desinentes quam parte saepius hiant et exerunt pedes senos, incurvos, ad formam caudae Gallinae arcuatim inflexos quos pennarum Anatis rudimenta putant, at delitescunt viventium intus et innatorum Cancellorum pedes veri sunt, etc. . . . Anates ex hujusce generis Conchis oriri, piscatorum certe commentatum est, et credulae simplicitatis fabula.'
255. P. G. Rzaczynski, 'Auctuarium Historiae Naturalis curiosae regni Poloniae, etc.', Gedani (Dantzig), n.d. (1715).
256. M. B. Valentine (Professor at Giessen, *nat.* 1657, *ob.* 1729), 'Historia simplicium reformata sub Musei Museorum titulo antehac in vernaculâ edita' etc., Frankfurt a/M., 1716 (an identical edition Offenbach 1732), lib. iii, p. 327.
257. Jonas Ramus, 'Norriges Beskrivelse', Copenhagen, 1735, p. 244 (2nd edition *fide* a note in the British Museum copy. A note in the handwriting of Sir Joseph Banks states that this was the only edition, but the 'approbation' is dated 1 Feb. 1715).
258. Bruzen de la Martinière, 'Le Grand Dictionnaire Géogra-

- phique et Critique', Hague, Amsterdam, etc., 1726-9, vol. vi (in the Paris 1768 edition, vol. iv).
259. Dictionnaire Universel François et Latin, etc. Imprimé à Trevoux et se vend à Paris, 1721. Vol. i, p. 875.
260. This reference is to the abstract of the paper of Sir Robert Moray (see p. 70) in the 'Abridgement' of the Phil. Trans.
261. Dictionnaire Universel François et Latin vulgairement appelé le Dictionnaire de Trevoux. Nouvelle édition, Paris, 1771. Art. 'Bernacle'.
262. H. Sloane, 'A Voyage to the Islands of Madera, etc., and Jamaica', 2 vols., London, 1707 and 1725. Vol. ii, p. 346.
263. 'Des alten Grönlands neue Perlustration', Frankfort, 1730.
264. H. Egede, 'Det gamle Grönlands nye Perlustratione eller Naturel Historie', Copenhagen, 1741. English translation, 'Description of Greenland', London, 1745. Egede is perhaps best known by the figure he gives of the Sea-serpent—which would appear to have been a giant Squid. It was illustrated by Mr. Bing, one of his brother missionaries, and has been reproduced, with Egede's description of it, by H. Lee in his 'Sea monsters unmasked', London, 1884, pp. 66-9, and Fig. 16.
265. 'Description et Histoire naturelle du Groenland par M. Egede, Missionnaire et Evêque du Groenland, Traduit en François par M. D(es) R(oches) D(e) P(arthenay)', Copenhagen and Geneva, 1763, ch. vi, p. 71.
266. A. F. Boureau Deslandes, 'Recueil de Differens Traitez de Physique et d'Histoires Naturelles', Paris, 1736, p. 197: 'Eclaircissement sur les Oiseaux de Mer et sur les Huitres'.
267. Jani Planci Ariminensis de Conchis minus notis, etc., Venice, 1739, p. 30, cap. xxiv: 'Concha Anatifera Maris Arimini' (Rimini).
268. 'Anatem macrissimam'—this is the only time I have ever seen the French word 'macreuse' latinized.
269. Same title with 'Editio altera duplici appendice aucta', Rome, 1760, an exact reprint with two Appendices. At p. 95, App. ii, cap. 3: 'Concha Anatifera cum pediculo rugoso ex testudine marina desumpta'.
270. J. C. Rieger, 'Introductio in Notitiam rerum naturalium et artefactarum. Hagae Comitum' (Hague), 1742, 2 vols. (all published) A—Crypt. Vol. i, p. 539: '*Anas niger, minor*; gal. *Macreuse*; *macroul*; ang. *Scoter*. . . falso creditur generari ex putrido ligno, etc. etc. . . . Male quoque confunditur cum Bernicla Scotica a Sibbaldo, Graindorgio, Childrey, Wormio, Bartholino, Vallemont, nam Bernacla est anserini, Macreuse vero anatini generis; utraque autem manifeste ovipara.' Vol. ii, p. 1015: 'Concha Anatifera

. . . vel nata potuit esse fabula, quod algæ adhaeserint plures conchæ, et anas marina in alga nidificare, et cum illis capta visa fuit.'

271. 'Nouvelles découvertes faites avec le microscope.' Par T. Needham, Traduites de l'Anglois. Avec un Mémoire sur les Polypes à Bouquet, etc. Par A. Trembley. Tiré des Transactions Philosophiques, Leiden, 1747, p. 6.
272. J. T. Klein, 'Von Schaalthieren, Conchæ Anatiferae, Entenmuscheln, etc.' in 'Versuche und Abhandlungen der Naturforschenden Gesellschaft in Danzig', Theil ii, 1754, p. 349.
273. The edition of 1757 quoted by Guettard (see note 279) does not appear to be available in this country—only the large two-volume edition issued in 1780. I take my extract from the German translation, 'Conchyliologie oder Abhandlungen von den Schnecken, etc. . . . Nebst der Zoomorphose oder Abbildungen und Beschreibung der Thiere welche die Gehäuse bewohnen', Vienna, 1772, pp. 274–5. 'Die Seevögel bauen ihre Nester in die Seepflanzen und in verschiedene Muschellagen, und verjagen, wenn sie jetzt anfangen wollen zu legen, den Fisch durch vielfältiges Picken aus seiner Schaafe, und legen die Eyer an dessen Statt hinein. Sind nun die Junge gross, so durchbrechen sie ihr Gefängniss und fliegen davon.' So far he is clearly inspired by Deslandes; he then continues: 'Es könnte also geschehen, dass das Ey der Rottgans, welches sehr klein, weich und mit einem Schleim, vermög dessen es sich an alle Körper, die es antrifft, anhängt, umgeben, bey dem Gröszen der Entenmuschel im Meer, hineinkäme. Das Ey könnte sich auf diese Art auf den Fisch der Entenmuschel abhängen, und als ein ächter Schmarozer von ihm eben so gut als von dem Meerwasser seine Nahrung ziehen.'
274. F. Salerne, 'L'Histoire Naturelle éclaircie . . . l'Ornithologie . . . traduit du Latin du Synopsis Avium de Ray, augmenté, etc.', Paris, 1767, ch. xxi, art. ix, p. 417.
275. J. Ray, 'Synopsis methodica Avium, opus posthumum', London, 1713, p. 141. John Ray died in 1705.
276. 'Letter from Mr. Ray . . . to Dr. Tancred Robinson, concerning the French Macreuse', Phil. Trans. Roy. Soc., vol. xv, 1685, p. 1041.
277. Valmont de Bomare, 'Dictionnaire raisonné universel d'Histoire Naturelle', Paris, vol. ii, 1775: 'Conques Anatifères'.
278. 'Mémoire dans lequel on examine le sentiment des Anciens et des Modernes sur l'Origine de la Macreuse', par M. de la Faille. Mémoires de Mathématique et de Physique présentés à l'Académie Royale des Sciences, Paris, 1780, vol. ix, pp. 331–344.
279. J. E. Guettard, 'Mémoires sur différentes parties des Sciences

- et Arts', Paris, 1768-83, in vol. iv (1783), pp. 238-303: 'Sixième Mémoire sur les Conques anatifères, à l'occasion desquelles on parle de la naissance spontanée'.
- 279a. This record rests upon an advertisement in the catalogue of a Birmingham bookseller. The paper was published between 19 April (vol. i, no. 1) and 27 December 1807. I have not been able to trace the 'item' and there is no file or copy of the paper in the British Museum or any other public library so far as I can discover.
280. *Op. cit.*, ed. 1885, p. 573.
281. 'Apellantur et *pernae* concharum generis, circa Pontias insulas frequentissimae. Stant velut suillo crure longo in arena defixae, hiantesque, qua limpitudo est, pedali non minus spatio, cibum venantur', Pliny, *Hist. Nat.* 32-55 (cf. bk. 9, cap. 51).
282. See the quotation from Boethius *ante*, p. 23.
283. C. Gesner, of Zurich, professor in the University, *nat.* 1516, *ob.* 1565. 'Conradi Gesneri, Tigurini . . . Historiae Animalium. Francoforti 1551, 1587, 5 vols. fol.' 'Liber iii qui est de avium natura' was published in 1555. In the edition of Frankfort, 1617, the section, 'De branta vel Bernicla' occurs at p. 95. (Each Liber is paged separately.) He gives a conscientious résumé of the chronicles of the Myth from Giraldus Cambrensis downwards, concluding with a lengthy précis of the account of Boethius (see notes 74-78).
- At the *locus citatus* Gesner gives two rough woodcuts of the 'clakis' and states, *inter alia*, that the *berniclae* were called *Barliatae*, but that he prefers *bratae* or *berniclae*. This is quoted by Aldrovandus (see note 155) in 1603.
284. The curious may find a full account of these Scythian or Tartar tree-lambs—Boramets—at the end of Claude Duret's amazing book (see note 160, pp. 325-341), and also in the Works of Sennert (see note 190) and Deusingius (see note 207). Other accounts are to be found in Engelbert Kaempfer's 'Amoenitatum exoticum', Lemgoviae, 1712, p. 505; J. P. Breynius, *Phil. Trans.*, vol. 33, 1725, no. 390, p. 353; E. Bruckmann, *Epistola itineraria*, 1735-56 (1756, p. 298); J. T. Klein, *Abh. Naturf. Ges. Danzig*, 1756, Part iii, p. 219; and see note 68.
285. John Hill, 'Review of the Works of the Royal Society of London', London, 1751, p. 105, and 'Natural History of Animals', London, 1752, p. 422.
286. Max Müller, *op. cit.*, p. 602 (ed. 1885).
287. F. Houssay, 'Les Théories de la Genèse à Mycènes', in the *Revue Archéologique*, ser. iii, vol. xxvi, 1895, pp. 1-27.
288. *op. cit.*, note 41, pp. 129-141.

289. Houssay puts it : ' J'ai voulu reproduire quelques types de lépas *ansérisés*, si l'on veut me permettre le barbarisme.'
290. H. Schliemann, *Mycenæ*, London, 1878, pp. 130-137. Fig. 214.
291. G. Perrot and C. Chipiez, ' Histoire de l'Art dans l'Antiquité ', Paris, 1882-1914, vol. vi, ' La Grèce primitive : l'Art Mycénien ', p. 239. English translation, ' History of Art in Primitive Greece ', London, 1894, 2 vols. Vol. ii, p. 407. Fig. 489.
292. *op. cit.*, p. 398. Fig. 481.
293. *op. cit.*, p. 390. Fig. 478.
294. *op. cit.*, pp. 386-9. Fig. 475-6-7. Cf. the British Museum and the Marseilles vases, P. and C., Figs. 476 and 477.
295. *op. cit.*, p. 382. Fig. 465 from the ' Ialysos Cup '.
296. *op. cit.*, p. 398. Fig. 481.
297. *op. cit.*, p. 377. Fig. 458 (Houssay, Fig. 5).
298. This is the date given by Sir Ray Lankester as the latest date from which we get these designs. It is difficult to conjecture why this should be so. The fall of Mycenæ took place, as quoted by Schliemann (p. xlviii) from Diodorus Siculus (xi. 65), in the 78th Olympiad 468 B.C. when the city was razed and its inhabitants carried away as slaves by the Argives, and the site was still desolate when Diodorus wrote, in the time of Augustus. The date of its foundation seems to be lost in antiquity, but Schliemann records a scarab found there of the date 1400 B.C., and says that the stelæ brought to light there are of approximately 1500 B.C. The cyclopean walls, of which there remains one extant, were doubtless contemporary with, or of little later date than those of the neighbouring town of Tiryns. Professor Middleton (*Encycl. Brit.*, Art. Tiryns) dates the period of its greatest splendour between the fourteenth and twelfth centuries B.C.; Dr. Schliemann dates these walls 1800-1600 B.C., and the second City of Tiryns 1000-800 B.C.
299. H. Schliemann, ' Ilios : the city and country of the Trojans ', London, 1880 (*Mycenæ*, see note 290).
300. Goblet d'Alviella, ' The Migration of Symbols ', London, 1894. See chap. ii, Pl. iii, and cf. chap. iii.

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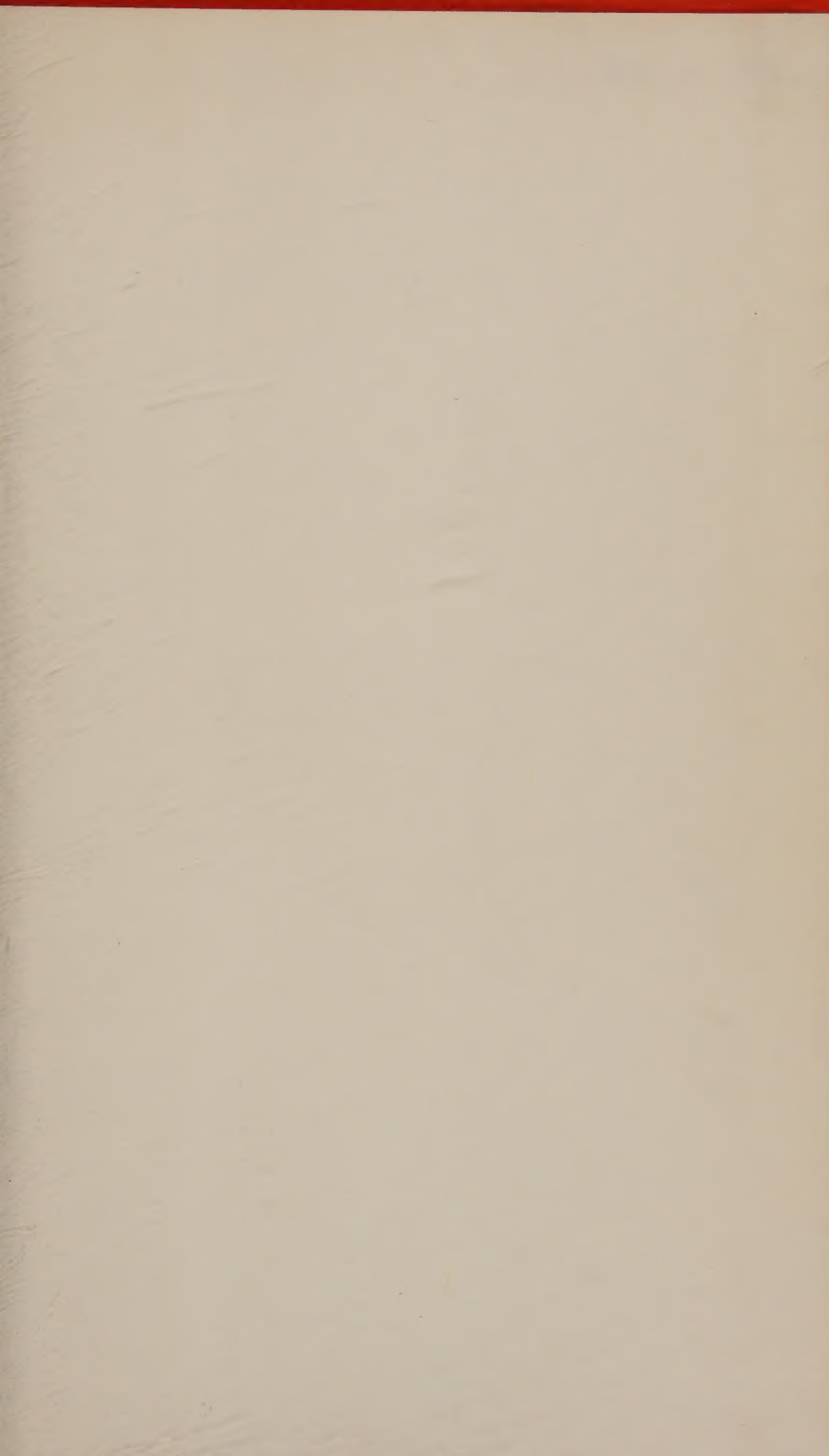
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